

The Project Gutenberg eBook of Definition & Reality in the
General Theory of Political Economy, by Thomas Cool

This is a *copyrighted* Project Gutenberg eBook, details below.

Title: Definition & Reality in the General Theory of Political Economy

Author: Thomas Cool

Release date: May 30, 2005 [EBook #15939]
Most recently updated: July 31, 2020

Language: English

*** START OF THE PROJECT GUTENBERG EBOOK DEFINITION &
REALITY IN THE GENERAL THEORY OF POLITICAL ECONOMY ***

Definition & Reality in the General Theory of Political Economy

Thomas Colignatus

Dutch University Press

&

Samuel van Houten Genootschap

This text is made available by the copyright owner as an etext for the Project Gutenberg (see <http://www.gutenberg.org>). The Project Gutenberg header specifies under what general conditions the book may be distributed while associated with the Project Gutenberg trademark. Additional conditions are: (a) No commercial use or resale of the etext is allowed, (b) Hardcopy prints are to be acquired at the publisher Dutch University Press (see <http://www.rozenbergps.com> and ISBN 90-3619-172-6) or their designated partners. Please note that the etext uses HTML so that the etext layout will differ significantly from the official layout.

2nd edition, January 2005
(The first edition was in March & June 2000)

Copyright © Thomas H.A.M. Cool
<http://www.dataweb.nl/~cool>, cool@dataweb.nl

Colignatus is the preferred name of Thomas Cool in science.

Lawful exceptions excluded, nothing of this publication may be copied or published by means of print, photocopy, microfilm, electronics or otherwise, unless a written permit has been given by the lawful owners of the copyright, and this also holds for whole or partial reworkings.

Behoudens uitzondering door de wet gesteld mag zonder schriftelijke toestemming van de rechthebbende(n) op het auteursrecht niets uit deze uitgave worden vervoelvoudigd en/of openbaar gemaakt door middel van druk, fotokopie, microfilm, electronica of anderszins, hetgeen ook van toepassing is op gehele of gedeeltelijke bewerking.



Published by
Dutch University Press

in association with Purdue University Press, West Lafayette, Indiana, U.S.A.
& Rozenberg Publishers, Amsterdam, The Netherlands.
Bloemgracht 82hs, 1015 TM Amsterdam, <http://www.rozenbergps.com>
Tel. +31-(0)20-6255429, fax +31-(0)20-6203395, email info@rozenbergps.com



Supported by
Samuel van Houten Genootschap

Wetenschappelijk bureau van het Sociaal Liberaal Forum
Scientific bureau of the Social Liberal Forum
P.O. Box 78, 2501 CB The Hague, Holland
Tel +31-(0)70-3555404 Fax +31-(0)-842113307 Giro 450623

ISBN 90-3619-172-6

JEL A00

Nederlandse uniforme genre indeling (NUGI) 681, 654 & 691

CIP-GEGEVENS KONINKLIJKE BIBLIOTHEEK 'S-GRAVENHAGE

Prologue

The basic idea of this book is that Keynes's *General Theory* is generalised even further by including endogenous government in the model, so that we arrive at a truly general Political Economy. The world had the Great Depression 1930-1940 and has the Great Stagflation 1970-today and by including 'stagnation in economic policy making' in our analysis we find a better explanation. The general theory also advises a democracy to create an Economic Supreme Court as a separate constitutional power, next to the Legislative, Executive and Judicial branches.

This book is primarily directed at my fellow economists and it primarily gives theory and stylized facts. The colleagues will specifically have to understand the 'Definition & Reality methodology' before they will appreciate that my analysis is scientifically warranted. Much work remains to be done in practical research. And much work remains to be done by the other professions.

Since the current imbalance of powers has many victims, it may be hoped, none the less, that the parliaments of our democratic nations investigate the issue too, so that there is more hope for improvement in their living conditions. Parliaments should do as Alfred Marshall (1890, 1947:3) wrote:

"Now at least we are setting ourselves seriously to inquire whether it is necessary that there should be any so-called 'lower-classes' at all: that is, whether there need be large numbers of people doomed from their birth to hard work in order to provide for others the requisites of a refined and cultured life; while they themselves are prevented by their poverty and toil from having any share or part in that life."

CG

Books are more stimulating and more enjoyable to read if they are guided by questions and if they cause questions themselves. This book has been written in the style that it provides answers and thus it must be feared to be a dull read. It is too late to change that style. However, some questions are: (1) How is it possible that Europe has an unemployment of about 10% for more than three decades now, and the USA the mirror image of poverty ? (2) Can we really trust our governments ?

CG

With this book ends a project that basically started with the Fall of the Berlin Wall in 1989. My hope is that this book contributes to the fall of some other walls, i.e. the intangible mental ones, consisting of

perceptions and conventions - but equally confining.

Contents in Brief

Book Introduction 11						I
Book Court	II	Trias	Politica	and 16	Economic	Supreme
Book usual'		III		Economics		'as 36
Book public	IV	Presentations		for 60	the	general
Book Reality	V		Methodology:		Definition 69	&
Book models			VI			Structural 87
Book Choice 158			VII			Social
Book notions			VIII			Supportive 186
Book form 198			IX			Reduced
Book Conclusions 216						X

Appendices 266

The symbol ° is used to indicate market clearing equilibrium (and possibly expectational). The symbol * or E[.] is used for expectations and expectational equilibrium (and possibly market clearing). The symbol ** is used for both, and · for the one or the other (and possibly both).

Contents

Book Introduction 11						I
1. presentation			Order			of 11
2. theory			The			general 11
3. Methodology 14						
Book Court	II	Trias	Politica	and 16	Economic	Supreme
4. Politica			The			Trias 16
5. century	The	economic	record	of	the	20 th 18
6. Court		An		Economic		Supreme 24
7. theory	Position	of	the	Court	in	economic 26
8. itself	The		record	of		economics 26
9. inadequacy	Economics	'as	usual'		and	its 30
10. cases			Four			empirical 32
11. imperative			The			moral 33
Book usual'		III		Economics		'as 36
12. Introduction 36						

	history					
	38	Structure	of			the
		argument				41
		The	difference		that	it
		means				42
13.		Unemployment	via	taxes	and	minimum
wage				43		
		The				earnings
		distribution				44
		Analysing	the			minimum
		wage				44
		The				Tax
		Void				
		47				
		Cause	of	the		Tax
		Void				48
		Development	of	the		Tax
		Void				51
		Marginal	tax	rate		&
		VAT				53
		Marginal	tax	rate		&
		dynamics				54
		Spillover	and			domino
		effects				56
		Diagnosis				and
		Therapy				56
		Stagflation				
		resolved				57
14.		The		1974		Duisenberg
disaster						59
	Book	IV	Presentations	for	the	general
	public				60	
15.			Unemployment			solved
!						60
16.		Enable	Russia		to	help
itself						64
		Parallel				
		64				
		Risk				not
		chance				
		65				
		Internal				not
		external				65
		Conclusion				
		66				
17.		Will	the	West	repeat	Versailles
?					66	
	Book	V	Methodology:	Definition	&	
	Reality			69		
18.		How		to		check
?						69
19.		Dealing		economically		with
concepts				70		
		Maximising				information
		power				70
		Pythagoras		and		the
		circle				73
		Falsification				
		76				
		Determinism		and		free
		will				78
		From	stylized	fact		to
		definition				82
		Relating		to		Hicks
		1983				83
20.		Structural		and		reduced
form						84
21.		Direct	application	to	the	Economic
Court				85		Supreme
22.						Methodological
summary						85
	Book	VI	Structural			
	models		87			
23.		A	textbook			macro-economic
model						87
		The				IS-LM
		model				87
		The				production
		function				89
		Dynamics				versus

statics				90
Phillipscurve				
90				
Macro-economic				
interactions				91
24.	Heterogeneity	and		nonlinear
taxation			92	
Heterogeneity				versus
homogeneity			92	
Nonlinear	versus			proportional
taxation			93	
Some				
literature				
93				
25.	Summary	of		current
views			94	
A				simple
view				
94				
A				complex
view				96
Efficiency				wages
intermezzo				96
A	more			sophisticated
view			97	
Confusions				
98				
26.				Heterogeneous
labour				99
Dromedary				
supply				99
Dutch	income			distribution
data			100	
Definitions				and
formulas				102
Amendment	to	the	textbook	model
Phillipscurve			106	on
27.				the
Subsistence				
106				
Definitions				
107				
Economic				
literature				109
Types				of
indexation				109
Formal				
development				
110				
28.				
Phillipscurve				
115				
Concepts				
115				
A				homogeneous
Phillipscurve				118
On				
expectations				
121				
Heterogeneous				
Phillipscurves				122
More	factors	that	cause	a
shift			122	
Crowding				
out				123
Poverty				
124				
The				submarket
Phillipscurves				125
Shifting				
back				
125				
29.				Tax
basics				
126				
Taxes				and
premiums				126
Common				
structure				127
Nonlinear				tax
function				128
Exemption				
129				

	The						marginal
	rate						140
	Balanced						
	growth						143
	Off						balanced
	growth						144
30.	Dynamic	curvature	of	the	tax		
wedge			145				
	Introduction						
	145						
	Formulas						
	145						
	Graphs						
	147						
31.	Differential impact of the minimum wage on exposed and sheltered sectors		149				
	Introduction						
	149						
	Model						
	151						
	Graphs						
	152						
	Tables						
	154						
	Conclusion						
	155						
32.	optimality					Dynamic	155
	The					Phillipscurve	155
	revisited						
	Investment,	growth					and
	productivity		156				

Book Choice 158 **VII** **Social**

33.	Introduction						
	158						
34.	The solution to Arrow's difficulty in social choice		159				
	Introduction						
	159						
	Basic concepts						
	162						
	Restatement of Arrow's Theorem					165	
	A note on the name of APDM					167	
	A lemma						
	167						
	Rejection of the Arrow Moral Claim (AMC)		168				
	Rejection of the Arrow Reasonableness Claim (ARC)						
	Selection of the culprit axiom.					169	
	Examples of consistent constitutions					170	
	A reappraisal of the literature					170	
	Conclusion						
	172						
	Addendum: Sen's restatement in "Development as freedom"		172				
	Addendum: Mas-colell, Whinston and Green, "Microeconomic Theory"						
	175						
35.	Without time, no morality						175
	Introduction						
	175						
	Control of natural forces in the social process		176				
	Three traditional methods					177	
	Borda point						Fixed
	178						
	Relation to Saari's work					179	
	Pareto						
	182						

	A			note				on
	cheating							182
	Conclusion							
	183							
36.	ethics	Some		notes				on
								183
	Book			VIII				Supportive
	notions							186
37.	lunch	On	the	nature	and	significance	of	a free
						186		
	Some							
	quotes							
	186							
	Consumers							
	surplus							187
	Economic							
	growth							188
	Conclusion							
	192							
38.	risk	Proper		definitions	for	uncertainty		and
					192			
	Uncertainty							
	192							
	Risk							
	193							
	Example							
	195							
	Wrong		use	in		economics		1921-
	2005					196		
	Book			IX				Reduced
	form							
	198							
39.	state	The	possibility	of	full	employment	in	the welfare
					198			
	Introduction							
	198							
	Stylized							
	facts							
	198							
	Concepts							
	199							
	The							
	theorem							
	201							
	Graphical							
	presentation							205
40.	ordination	The		possibility		of		co-
						206		
	Stylized							
	facts							
	206							
	Concepts							
	207							
	The							special
	theorem							211
	The							general
	theorem							213
	On	the	interaction	of	the	reduced		form
	theorems			214				
	More							on
	chance							
	215							
	Book							X
	Conclusions							
	216							
41.	"Principles"	Relating		to				Mankiw's
						216		
42.	Milberg	Relating	to	Krugman,	Phelps,	Ormerod	and	Heilbroner &
				219				
	Introduction							
	220							
	Review		of			positions		and
	qualities					220		
	Krugman:				"We			don't
	know"					222		
	Phelps:							"Structural
	slumps"					224		
	Ormerod:				"Death			of
	economics"					228		
	H&M:				"Crisis			of
	vision"					230		

A (2000)	note	on	the	New 299	Economy
On book	the	2005	edition	of 300	this
Autobiographical note					303
What ?	is	new	in	this 305	analysis
Abstract 306					
Literature 311					
Index 323					

Book I

Introduction

1. Order of presentation

The basic idea of this book is that Keynes's *General Theory* is generalised even further by including endogenous government in the model so that we arrive at a truly general Political Economy. The argument can be presented in a top-down fashion, for example by repeating the IS-LM model before the amendments are introduced. This order appears to be uninviting and therefore the argument is presented in a bottom-up fashion. We better discuss the amendments before we look at the consequences for theory as a whole. We start with the new economic synthesis and the argument for the Economic Supreme Court, since these motivate the book.

2. The general theory

Political Economy is the science of the management of the state. More in general, 'economics' is Greekish for 'management theory'. [1] Marshall already explained that 'economics' is wider than 'political economy', see his "Principles of economics" (1947:43). The proper definitions are:

- Economics 'in a narrow sense' puts the *approach*, methods and tools, of the discipline central, and looks at a variety of subjects.
- Political Economy puts the *subject*, the management of the state, central.
- Economics 'in a broad sense' joins the 'narrow sense' and Political Economy.

One way to view these distinctions is to visualize a matrix with the sciences in the rows and the subjects in the columns. The common economist may to some extent neglect the inputs of the other disciplines, but the political economist must draw on the resources of philosophy, history, law, sociology, politicology, social psychology, biology, physics and so on. [2] Political Economy is, just by definition, the study that tries to integrate all human knowledge about the management of the state. Political Economy is, in that respect, the proper continuation of ancient philosophy on that subject matter.

Confusions easily arise when these definitions are not understood. [3]

The reasons to adopt these definitions are rather mundane. The King - and the ruling elite - can derive their wealth (a) from exploitation or (b) from general productivity growth. The latter is more advantageous in the longer run. [4] Productivity can be increased in basically two ways: by technology or by management. For example, computers can add to our wealth, and we must have technology to be able to have computers. But a room full of computers does not present much value if we don't manage their use. So technology and management are the two sides of the coin of human wealth. Though no study should neglect either side, there of course is advantage in some specialisation of those studies. The engineers take one side, the economists the other.

Psychologists and artists might object to that view, and argue that proper training in enjoyment and in particular the arts could teach people to enjoy life so much more, requiring neither additional engineering nor economics. In a sense, this viewpoint would seem to be correct. In another sense, it apparently isn't sufficient. Human beings

get used to levels of wealth, and require more wealth. It would be economics again to study why people are not happy eating bananas and watching sunsets. And dealing with issues like this, is management again.

Also, when writing this in 2000, and again 2004, there are some rumours about the 'end of the state' and the 'loss of power of existing nation-states'. This clarifies that the definition of 'Political Economy' subsequently requires a definition of the 'state'. I will not try to give that here. [5] For the purposes of this book it suffices to take the existing nation-states, and international governmental bodies, and we can reconsider that assumption when they all drop their constitutions.

☪

Then: The economic process can be understood much better if economic policy making itself is included as one of the factors, and then is studied from the Public Choice perspective. The basic proposition of this book hence is that we can extend the current 'neoclassical synthesis' by including endogenous government in the model, so that we arrive at a truly general Political Economy.

☪

This extension causes the subsequent proposition that it would be advisable for a democratic society to create an Economic Supreme Court as a separate power in the constitution next to 'Trias Politica' of the Legislative, Executive and Judicial branches.

☪

It is useful to recall that economics does not restrict its attention to 'income' only, but also considers rights and duties. Coase's theorem is a good result in an older tradition. Sen (1999)'s "Development as freedom" is a welcome refresher. Beckerman (1999) explains that when economic growth causes our grandchildren to be wealthier than us anyhow, that we should rather focus on bequeathing a good system of justice rather than try for even more growth. So, it is quite natural in Political Economy to also consider the law.

☪

The basic argument is the following. Governments already have economic planning bureau's - the US for example have the Council of Economic Advisers to the President. [6] Current forecasts are conditional on the assumption that the government will do as planned and promised. Such forecasts often fail, and can be forecasted to fail if one takes an independent position. Proper forecasting requires that the economic adviser not only has a scientific attitude, but also a scientific position, and is able to tell and indeed tells the public that plans or promises will fail if there is scientific reason for thinking so. Given the experience of the 20th century, it appears that strong constitutional safeguards are required to provide for this public function. Hence an Economic Supreme Court.

☪

Keynes (1936) already formulated a 'general theory' for political economy. Keynes subsumed the 'classical' approach as a special case. [7]

Keynes's theory is rich in many respects and poor in other. On the poor side: Keynes's book is not exact on many issues, and proper models like the IS-LM model were only developed by Hicks, Meade and others. Samuelson (1947) presented the first integration of both the competitive model and the utility maximising calculus, only then giving body to the notion of 'classical'. [8] However, on the rich side: Keynes's book was and still is a source of inspiration for new research angles. Note that Samuelson coined the phrase 'neoclassical synthesis' for 'his' conceptual integration of classical processes at the micro level and Keynesian processes at the macro level. This synthesis endures till today, as e.g. Colignatus (1990a), Blanchard (1999) and Krugman (1999) acknowledge. It is important to note, though, that Samuelson's phrase is a bit awkward, since Keynes himself already proposed such synthesis - he namely did not abandon micro-economics. It would be wrong to associate Keynes only with the macro-economic leg of the synthesis. Thus the neoclassical synthesis is actually the Keynesian synthesis itself. But we may as well use the phrase 'neoclassical synthesis', if only to acknowledge the role of others. [9]

Keynes remains vitally present, not only for reasons of political economy but also in the standard macro-economic core. A student who considers recent textbooks on economics, such as Mankiw (1992 and 1998) or Dornbusch & Fischer (1994), notes that the core of macro-economics still derives from Keynes (1936) and from the interpretation of his theory by the IS-LM model developed by Hicks (1937) and others. The ongoing discussion since 1936 can only be understood by properly including these original theoretical roots. Krugman gives a useful refresher in his "The return of depression economics" (1999). Flanning & Mahony (1998, 2000) provide a recommendable modern summary companion to *The General Theory* that is a testimony of its relevance. The theoretical extension with the Phillipscurve in its relation to unemployment and inflation belongs to this tradition. Also practical economic modelling, such as the models Athena and MIMIC of the Dutch Central Planning Bureau rely on that macro-economic core, see CPB (1990) and Graafland and De Mooij (1998).

There are also good reasons to remain modest about the novelty of the 'new synthesis' proposed in these pages. Keynes had an open eye to the policy making process and social philosophy. Similarly, Public Choice theorists like Buchanan and Tullock have not suggested that other factors like the macro-economy itself were not important - they only emphasised the importance of Public Choice. In that sense the presently proposed extension with institutional economics, information and Public Choice is no real extension.

In addition, the three pillars of the Trias Politica are not fully independent already. There are rather numerous dependencies instead. A modern nation has decentralised much power, and created hundreds of 'independent organisations' - so that some speak about 'myrias politica' instead of 'trias politica'.

However, from the very definition of 'political economy' it follows that the function of analysing, theorising and forecasting the management of the state is a part of management itself, and this function indeed can be in danger of the other three branches.

A nation that will adapt its constitution to create an Economic Supreme Court will still feel that it takes a historical step. Similarly, economists would feel the change of perspective. It would be a different world, for example, if the US Council of Economic Advisers to the President would honestly state that they 'would rather veto the Budget' if they really would think so; and if they would become subject to criticism from the profession if they wouldn't start behaving like this. So, speaking about a new synthesis is of major significance. And it can be shown to be crucial.

3. Methodology

Methodology appears to be important in this book. Sometimes, paradigm shifts are as much a matter of methodology as a matter of content.

One example is Keynes. As an economist, Keynes emphasised the economic content of his analysis: notably his findings on the peculiar role of money in the economy. His observation is firstly that money is both a medium of exchange and a store of value, and secondly that storage value depends upon expected value: and then his analysis on expectations takes off. In retrospect the force of Keynes's analysis is a bit less 'economics' than he thought, and has more to do with the handling of time than with money per se. Samuelson (1947, 1983:117) and Grandmont (1983) showed that the analysis can be reproduced if money is entered in the utility functions. What remains is the issue of time. From a methodological point of view, Keynes's theory is general in that it extends economic equilibrium with the notion that market non-clearing *disequilibrium* such as unemployment could be a state of expectational *equilibrium* too (a different concept of equilibrium). And money need not be the only cause, witness for example the difficulty of forecasting sales in order to set production. [10] [11] [12]

Another example of the relevance of methodology appears to be Samuelson (1947). Samuelson emphasises his interest in a general theory (that word again) of economic theories, and clarifies that such a theory (i) should apply to various circumstances and (ii) be meaningful

(as opposed to being a tautology). Samuelson clearly presents his argument as a methodological one. [13]

Originally, the draft of this book started out with methodology, but this discussion now has been moved downwards, to a place where one will better appreciate its argument and the need for it.

Book II

Trias Politica and Economic Supreme Court

4. The Trias Politica

Montesquieu published his *De l'Esprit des Lois* in 1748. An English translation can be found on the internet, and a short biographical note, taken from there, has been included in an appendix. Though his book discusses many issues, it remained famous for the theory of the separation of powers, i.e. of the Legislative, Executive and Judicial branches of government. The American phrase is 'checks and balances'. A key passage in Book XI shows that Montesquieu also refers to the existing case of England - so that his role is not one of originator but one of keen observer and developer of theory:

"One nation there is also in the world that has for the direct end of its constitution political liberty. We shall presently examine the principles on which this liberty is founded; if they are sound, liberty will appear in its highest perfection.

To discover political liberty in a constitution, no great labour is requisite. If we are capable of seeing it where it exists, it is soon found, and we need not go far in search of it.

6. Of the Constitution of England. In every government there are three sorts of power: the legislative; the executive in respect to things dependent on the law of nations; and the executive in regard to matters that depend on the civil law.

By virtue of the first, the prince or magistrate enacts temporary or perpetual laws, and amends or abrogates those that have been already enacted. By the second, he makes peace or war, sends or receives embassies, establishes the public security, and provides against invasions. By the third, he punishes criminals, or determines the disputes that arise between individuals. The latter we shall call the judiciary power, and the other simply the executive power of the state.

The political liberty of the subject is a tranquillity of mind arising from the opinion each person has of his safety. In order to have this liberty, it is requisite the government be so constituted as one man need not be afraid of another.

When the legislative and executive powers are united in the same person, or in the same body of magistrates, there can be no liberty; because apprehensions may arise, lest the same monarch or senate should enact tyrannical laws, to execute them in a tyrannical manner.

Again, there is no liberty, if the judiciary power be not separated from the legislative and executive. Were it joined with the legislative, the life and liberty of the subject would be exposed to arbitrary control; for the judge would be then the legislator.

Were it joined to the executive power, the judge might behave with violence and oppression.

There would be an end of everything, were the same man or the same body, whether of the nobles or of the people, to exercise those three powers, that of enacting laws, that of executing the public resolutions, and of trying the causes of individuals."

It is useful to recall Montesquieu's definition of political liberty:

"We must have continually present to our minds the difference between independence and liberty. Liberty is a right of doing whatever the laws permit, and if a citizen could do what they forbid he would be no longer possessed of liberty, because all his fellow-citizens would have the same power."

Thus, of key importance: A person with few means can take less advantage of his liberties than a person with more means. A person with insufficient means might be regarded as not free at all. This brings us to the economic amendment to Montesquieu's heritage.

There appears to be a clear link between Montesquieu and Adam Smith. In his preface to his edition of Smith (1776; 1974), Skinner explains that Smith used the historic method to provide him with empirical input (rather than econometrics). Quite fittingly, Skinner writes:

“(...) it was Montesquieu rather than Voltaire who provided the most important impetus to their studies. Montesquieu was widely regarded as the ‘greatest genius of the present age’ and his *Esprit des Lois* came to be enjoy a considerable vogue in the circle of Smith’s friends. But while Montesquieu’s work provided an important stimulus, the Historians in general, and Smith in particular, went well beyond the teaching of the master. In the words of one of their number: ‘The great Montesquieu pointed out the road. He was the Lord Bacon of this brand of philosophy. Dr Smith is the Newton.’” (p30)

☪

The limitations of the Trias Politica with regards to economics are a well-known theme. Marshall’s “Principles of economics” opens with the painful story of poverty - as Mankiw unfortunately waits till p421.

David M. Kennedy (1999:245), “Freedom from Fear; The American people in Depression and War”, quotes Roosevelt in a special message to the US Congress on June 8 1934:

“(...) ‘the interdependence of members of families upon each other and of the families within a small community upon each other’ provided fulfillment and security. But those simple frontier conditions now had disappeared. ‘The complexities of great communities and of organized industry makes less real these simple means of security. Therefor, we are compelled to employ the active interest of the Nation as a whole through government in order to encourage a greater security for each individual who composes it.’ The federal government was established under the Constitution, he recollected, ‘to promote the general welfare,’ and it was now government’s ‘plain duty to provide for that security upon which welfare depends’. (...)”

5. The economic record of the 20th century

Unemployment and poverty can be seen as indicators for the quality of the management of the state. They are social phenomena, and thus depend upon the rules that society defines. When they exist, then apparently something is wrong with the management.

The economic record of this century may be judged with mixed feelings. Much has been achieved, but much has gone wrong too:

1. Two World Wars.
2. The Great Depression 1930 - 1940.
3. The Great Stagflation 1970 - the present (2005). [14]
4. Disputable ways for decolonisation and development co-operation.
5. The economic disaster in Russia and Eastern Europe after the Fall of the Berlin Wall.
6. The environment.

Of this record, the wars are the focal points of attention.

☪

Wars are disasters for the common citizen. Perhaps wars need to be fought for political reasons, but, an economist can express some doubt. In fact, Keynes wrote his General Theory with an eye to the threat of war:

“War has several causes. Dictators and others such, to whom war offers, in expectation at least, a pleasurable excitement, find it easy to work on the natural bellicosity of their peoples. But, over and above this, facilitating their task of fanning the popular flame, are the economic causes of war, namely the pressure of population and the competitive struggle for markets. It is the second factor, which probably played a predominant part in the nineteenth century, and might again, that is germane to this discussion.”

John Maynard Keynes, “The General Theory of Employment, Interest and Money”, 1936:381-382

☪

Skidelsky even makes a strong case that it took the War for people to start listening to Keynes:

“In his biography of Keynes, Sir Roy Harrod reports a widely acclaimed speech delivered by his subject to the House of Lords in 1946, the year of

his death. 'But Keynes had been talking in this style ... for some twenty-seven years. Why had his words not been listened to ?' (...) Unemployment as a problem in economic theory may have been sufficient to produce a revolution in the discipline; unemployment was not a sufficient problem to society to produce a revolution in political ideas. If it was not the prolonged experience of mass unemployment that finally broke the hold of nineteenth-century ideas, what was it ? A strong case can be made out for war. 'Normal' life could coexist with unemployment; it could not with modern war."

Robert Skidelsky, "The reception of the Keynesian revolution", in Milo Keynes, "Essays on John Maynard Keynes", CUP 1975:89 & 102-103

☪

Kennedy (1999) makes clear that 'Keynesian' elements like maintaining aggregate demand were prominent elements in even Herbert Hoover's policies. Similarly, deliberate inflation was considered by Roosevelt e.g. to help farmers reduce their debt burden. Nevertheless, Kennedy has to write: "In the ninth year of the Great Depression and the sixth year of Roosevelt's New Deal [i.e. 1938 /TC], with more than ten million workers still unemployed, America had still not found a formula for economic recovery." (p362) There was contact between Roosevelt and Keynes, but with little effect - Roosevelt apparently regarded Keynes pejoratively as an academic theorist. Then:

"Deprived of adequate public or private means of revival, the economy sputtered on, not reaching the output levels of 1937 until the fateful year of 1941, when the threat of war, not enlightened New Deal policies, compelled government expenditures at levels previously unimaginable." (p360)

The policy stagnation around 1938 is the more surprising, since Kennedy reports Roosevelt saying on a Fireside Chat at that time (April 14 1938): "History proves that dictatorships do not grow out of strong and successful governments, but out of weak and helpless ones." (p362)

☪

Keynes is an amazing person also on the following. Skidelsky makes another important point about Keynes's role in the aftermath of the First World War in turning people's attention from geopolitical power to economic growth:

"None of this is to deny that *The Economic Consequences of the Peace* was a very influential book. Of the dozens of accounts of the Treaty which appeared in the 1920s it is the only one which has not sunk without a trace. It captured a mood. It said with great authority, flashing advocacy and moral indignation what 'educated' opinion wanted said. It also had an influence at a deeper level. Wickham Steed was right: it was a revolt of economics against politics. The war had been fought in the name of the nation, state, emperor. These, Keynes argued, were false gods, from whom he sought to divert allegiance towards economic tasks. It was a message calculated to appeal to the nation of Cobden and Bright, once it had recovered of its intoxication with military victories. It helped form the outlook of a new generation. The nineteen-twenties saw a new breed of economist-politician, who talked about the gold standard and the balance of trade as fluently as pre-war politicians had talked about the Two-Power standard and the balance of power. (...) The idea that the creation of opulence was the main task of rulers was born in 1919 though it came of age only after the Second World War." Skidelsky (1983:399). [15]

Reading this, one would tend to think that there still is a risk when politicians get involved with the economy.

☪

The Trias Politica setting is usefully limited to the nation-state. However, if we were to limit our attention to the nation-state, could we really neglect the external conditions ? One would think not. A crucial chapter in the theory of the nation-state concerns the external relations: trade and war by tradition, and then, in our age: the risks of world population growth and of environmental disaster, i.e. risks that may spill over across the border. Wise managers would not close their eyes to external risks. Hence, though this book concentrates on the situation in the Western democracies, we also regard the non-democracies in the developing world.

Projections for the future indicate such external risks:

"The Global Crisis scenario (...) explores the risks and dangers of a neglect of, and late response to regional and global challenges (...) the world may end up in the throes of widespread distress, an eco-crisis, which can only be corrected at high cost. The policy message conveyed by this scenario is abundantly clear. Dismissing this scenario as unduly gloomy and

pessimistic is in our view, absurd; such a statement would be tantamount to a complete denial of large segments of twentieth-century history."

Centraal Planbureau, "Scanning the future", SDU 1992:211

œ

World population is forecasted in 1999 to rise to 9 billion around 2050, with a forecast error of 1.5 billion lower or higher. The central forecast already is a reduction from a forecast of 9.5 billion as the result of AIDS. This disease not only kills, but also reduces the quality of life for the surviving. Other diseases may well develop. Or, for AIDS itself, given the huge number of infected, a mutation could develop that can be transferred by flies or mosquitos too - that already transfer diseases. Another problem is that when policy succeeds in improving a situation, then such new room tends to be taken up for growth again. So it would be some kind of a miracle if the world would hit the 'low' 7.5 billion target with a healthy, well fed, educated and peaceful population.

œ

UNDP administrator Speth correctly states:

"Fifty years after the adoption of the Universal Declaration of Human Rights, one third of the world's people are enslaved by a poverty so complete that it denies them fundamental rights." (UNDP 1999 internet site)

This quote usefully recalls to memory that Montesquieu's liberty has been extended in this century with more rights, so that there is an even stronger intellectual case to test whether the system of *Trias Politica* serves the demands made on it.

Amartya Sen's "Development as freedom" (1999) is along this line of reasoning.

œ

The hypothesis of self-interest clarifies that Western nations are less interested in the development issue. Surely, if the Democratic State knew that economic policies were feasible that would make external development Pareto improving rather than wasteful, then it would deem it wise to pursue such a course. And part of the argument in this book is that such knowledge does not get the attention that it deserves. On the other hand, we should presume the lack of that attention, and the lack of sufficient knowledge. But we can still argue that the current world development situation should provide the West with some worry anyhow.

For Western democracies, current situations in the developing world might be regarded as replays of their own past, and as forecasts for their own future - if times of distress were to return again. A 1996 UN-WIDER statement was:

"Thus, man-made crises have become a serious, perhaps the most serious, threat to human security in the present world." [16]

"Over the last ten years, the number of humanitarian crises has escalated from an average of 20-25 a year to about 65-70, while the number of people affected has risen more than proportionately. The International Red Cross estimates that the number of persons involved is increasing by about ten million a year. As a result, scores of people have been left dead, maimed, starving, displaced, homeless and hopeless. Afghanistan, Bosnia-Herzegovina, Burundi, Cambodia, Central America, Haiti, Liberia, Sierra Leone, Rwanda and Transcaucasia are the countries or regions where the most acute crises have occurred during the last two decades. In turn, Guyana, Kenya, Surinam and Zaire are nations where negative trends in the factors under analysis make many fear that social explosions may take place in the not too distant future, unless corrective measures are introduced urgently." (idem)

E. Wayne Nafziger (1998), of UN-WIDER, reports in the *Financial Times*:

"Many people believe that humanitarian disasters are ethnically determined, arising from differences of language, race, tribe or national origin between disputants. These differences, it is thought, are so deeply rooted that they are not amenable to economic and political reform: violence cannot be avoided. That is too pessimistic a conclusion. Our research focuses on the contribution to humanitarian crises of two factors: national income and the role of the government. Both provide some reasons for modest optimism, or at least subjects for action. (...) An analysis of the root causes of humanitarian crises indicates that the mechanism for preventing them are primarily macro-economic."

œ

Then, there are Russia and Eastern Europe after the Fall of the Berlin Wall in 1989. The risks of turmoil in Russia, while nuclear weapons are abundantly about, were already evident in 1989, and indeed we have seen an attempted coup against Gorbachev and later the bombing of the Duma parliament building. Eastern Europe had the criminal actions of Milosevic. The risks with respect to Russia still exist. Both in 1989 and today in 2004 a reasonable expectation was and is that Eastern developments would and will be positive. But the crucial issue does not concern the average, but the *risk*. Who understands the economics of unemployment will see that Western economic policy is deficient on this point - a topic that we shall return to.

In the middle of 1999 the UNDP also published a report on Eastern Europe. The conclusion is that there is much more misery than commonly recognised, and that most misery is needless and also a result of wrong decisions by Western governments. In an interview with director Kruidrink, a key question and answer is:

Q: "According to some experts it went wrong precisely since the economic reforms did not go far enough." A: "Nonsense. The ruin would only have been greater. No, precisely the reform of the state should have been the main target. Some people actually said that ten years ago, but they were not listened to. They were considered to be *softies*, since they wanted to maintain parts of the communist system. You currently see economists of the Worldbank and IMF slowly change their minds too." [17]

What is crucial is that the methods, by which such dissenting 'softies' were silenced, were unscientific. Crucial policy preparations were left to the fric and fray of politics and bureaucrats, unworthy of a decent democracy.

☪

There is Robert Barro's research in the relationship between democracy and growth. An early report is in Barro (1996) [18] but he has been working on it since. His results suggest that it first takes a certain level of income before democracy has a chance. This reminds one of the willingness of Westerners to accept dictatorships in developing countries as long as economic welfare is increasing. Four comments can be made: The present discussion is targetted at existing democracies, and Barro's finding then is only relevant as a warning of what could happen if the risk of, say, an eco-crisis would materialise. Secondly, Barro seems to imply that current democracies are finished, and that there is no next stage. But we can advance. Thirdly, once the concept of an Economic Supreme Court is clear, then one could imagine that a dictatorship on the way to a democracy (notably China) could first install such a Court - and the rule of law - before it moves towards elections. Finally, we should read Sen (1999a) as an answer to the Barro analysis, since it could rather be that democracy futhers development and growth.

☪

Above uses plain human survival to judge on the economic record, it focusses on war, humanitarian disasters, overpopulation, diseases, environmental deterioration. It is sobering to regard the more standard economic outcome. Table 1 reviews the unemployment in the European Union for 2003, reassembling the data after the enlargement of May 1 2004.

Table 1. Unemployment in the European Union in 2003

Eurostat [19]	EU (after enlargement)	EU 15
Total population	451 million	378 million
Unemployed	19.0 million	14.2 million
Idem, % labour force (age 15+)	9.1 %	8.1 %
Participation [20]	72.0 %	72.4 %

The unemployment figure excludes many welfare state benefit recipients who could work when judged from other standards. For example, there is the well-known case of 'disability' with a major fraction of hidden unemployment, see OECD (2003). A hypothesis in public choice theory is that policy makers in the past solved part of their problem with unemployment by allowing an increase in these other welfare programmes. The recent focus in the policy debate is upon increasing participation again, shifting people from such arrangements back into the labour force. This debate however runs into the problem of

unemployment again. Disability, sickness, early retirement and welfare relief might be reduced (by reducing problems in the bureaucracy, solving principal-agent problems, and by adjusting definitions, reducing entitlements), yet it might well cause higher unemployment again and thus only shift the problem. A major insight thus is that unemployment remains the root problem for macro-economic policy making. It is proper that we pose the question: why is it that the EU doesn't achieve more employment? This question can best be answered by taking a long run point of view - which is not the standard economic point of view.

93

We can conclude this chapter as follows. The economic record of the last century is mixed, and human suffering was large. For the future: there still are serious risks. Bad economic conditions don't necessarily result into wars. During the Great Depression the US remained a democracy and didn't resort to fascism. Though it came close ! [21] Nevertheless, there can be situations in which certain politicians can rise to power by exploiting social, religious and racial sentiments - which sentiments actually draw on economic distress and uncertainty. Such is actually the rule, and stable democracy is rather the exception. Though the probability of such developments might be limited, in the currently affluent West, their costs would be great, and hence the risk may be sufficiently large to try to *do* something about it. If the system already fails now, what may happen if circumstances would turn out to be far less favourable?

Since Western societies since the Second World War already have much experience with standard approaches to enhance economic security, and are apparently failing to a large degree, it becomes time to look for a more fundamental approach. We may look into the very process of economic policy making itself.

6. An Economic Supreme Court

Since the problem is found to be equal across nations and across time, we may look for common factors. The basic factor that we can identify is the Trias Politica structure of Western democracies. The present checks and balances are imperfect. This structure appears to allow too much leeway for forces that are detrimental to the economic well-being of the population at large, their economic security and their possibilities for the pursuit of happiness. The structure of economic policy making allows politicians, bureaucrats and special interest groups too much room to distort the contribution of economic scientists.

The conceptual scheme of the Trias Politica was a useful ladder to climb out of the situation of feodality and absolute kings. But a ladder is not a goal in itself. Democracy is a living concept and can develop further. If we find that the Trias Politica fail with regards to our needs, then we should adapt it.

In the past there have been two steps towards more independence and more checks and balances in the management of the economy. First there was the independent Central Bank, and then the separate Council of Economic Advisers to the government (or other planning body). Indeed, the situation after the Second World War has been much improved: instead of a Great Depression we only got a Great Stagflation.

Okun (1983), "The economist and Presidential leadership", provides an recommendable account of current practice. Two quotes are particularly relevant, one that observes current partiality and one that advises impartiality:

"Given these constraints, members of the Council of Economic Advisers are clearly recognized as the President's men. If they speak publicly, they will be identified as spokesmen for administrative positions."

"One wishes for a more effective way of influencing public and congressional opinion in the areas of professional consensus. There is a role to be played by a Supreme Court in the profession, although a less important one than that actually fulfilled by the Council and the Bureau of the Budget in recent years." (p580)

We are advised to go one step further than the current situation, and create a scientific Economic Supreme Court safeguarded within the Constitution as an equal partner next to the three of the Trias Politica. Its role will be limited, but crucial.

The argument is not that politicians could not be qualified in economics. The argument is the balance of power. Having an Economic

Supreme Court increases democracy, since it improves the quality of the checks and balances. It caters to the civic right of good government and to the right to know.

The crucial considerations are:

- The first point is *theory dependence*. The State will decide on its policy while using an economic model. Hence policy is directly dependent upon the state of economic theory. Who is going to decide what the current state of theory is ?
- The second point concerns *self-reference* (reflexiveness). The model contains a submodel of State instruments. Clarity requires that policy itself is clearly formulated and put into the model too (with error terms to allow for possible discretion).
- The third point is *conflictive self-reference*. One can conceive the situation that the government announces a policy while the true scientific forecast shows that the policy is untenable and will be repealed later. Hence there is an internal source of conflict - the worst kind, not a dysfunctional person, but a logical knot.
- Finally, there is a 'general conflict of interests'. Governments have more objectives, and any power group might want to exert its influence anyway.

It follows from this that the Constitution should warrant for the Economic Supreme Court:

- It would be possible for the Court to use a model with an endogenous government. The Court would scientifically forecast government actions, instead of *conditionally*. The conditional forecast assumption that government promises will be kept and government assumptions realised, will be dropped.
- As the Court will have a scientific base, there can be publications and discussions with different analyses, and these would not by themselves mean a breach of confidentiality.
- The Court cannot exist without some power.

It would suffice for the Court to have the power to veto the national budget if the information that the Executive presents or uses for the budget is scientifically incorrect (in the judgement of the Court). The information and statistics only. The Court will focus on the statement on the deficit and the national debt, since all errors accumulate in those figures - though it can call any number or piece of economic information into question. Parliament of course keeps the power to decide on the budget and on policy. President and Parliament would lose the power to make misleading statements as judged by the Court.

An appendix contains a draft constitutional amendment as an example, to start thinking about it. The appendices also contain a description of the current US Council of Economic Advisers, and the difference should be clear - e.g. where the CEA appears to have no scientific status.

With an Economic Supreme Court in place, a downside is that a nation could get stuck in a specific economic theory. A Court could believe in Monetarism while reality would require something differently. Indeed, Keynes himself addressed his *General Theory* to his fellow economists, who were as conservative as politicians in rejecting his proposals about fighting the Great Depression. To answer this: Such stagnation in policy making can happen nowadays too, but the situation with a Court is much more transparent. Also, the very job of the Court requires it to pay attention to the data, and this tends to make for eclectic views.

7. Position of the Court in economic theory

It is useful to indicate in more abstract terms what this book does. Unemployment is not taken as a natural disaster like an earthquake, but regarded as the result of policy. The central questions in the political economy of employment are: *can* one solve unemployment and poverty, does one *know* how, and does one *want* to ?

Next to the *budget set* and *preferences*, it appears useful to distinguish *information*. Government policy making is not guided by prices as markets are. Perceptions play an special role. For example, when policy makers associate tax policy with income distribution policy, and in that manner overlook inefficiencies such as the tax void, then policies are blocked that would otherwise benefit everyone.

Colignatus (1990a) forecasted a revival of institutional economics. We see this happening in the literature indeed. This current book belongs to that development. An Economic Supreme Court, or the lack of it, is a topic in institutional economics, and thus has a natural position in the proposed new synthesis. [22]

There have been precursors to this approach indeed. Galbraith (1998:199) correctly quotes Michael Kalecki ("Political aspects of full employment"):

"The assumption that a Government will maintain full employment if only it knows how to do it is fallacious."

8. The record of economics itself

Economics is not a finished science. Hicks (1983) even rejects the notion of 'science' itself, and writes a chapter with the title 'A discipline not a science'. (See also below.) He quotes Keynes:

"The Theory of Economics does not furnish a body of settled conclusions immediately applicable to policy. It is a method rather than a doctrine, a technique of thinking, which helps its possessor to draw correct conclusions."

œ

A joke is that there are as many theories as economists, and five for Keynes. Krugman (1994ab, 1996a) describes eloquently how Western economies came from full employment and a period of great expectations to a period with unemployment and inflation and a productivity slowdown, and as a result diminished expectations. He is even more eloquent in describing the different fashions in economics and economic policy making. He gives a brilliant discussion of Keynesians, Monetarists, Supply-siders, Business-cyclists, Post-Keynesians, Strategic Policy Adepts. Krugman also makes an apt distinction between serious economists and the policy entrepreneurs who abuse economics for schemes of their own. [23]

œ

The discussion by Galbraith (1998) is also very useful to understand the history of economic schools in the last decades. I discuss this book in the final chapters.

œ

There also is ample reason to be humble about econometric testing of theories or identifying regularities (see Hendry (1995)), and then we haven't started yet on the quality of national statistical data. [24]

œ

If we regard the role of economic theory itself, then we cannot overlook the error that economists made with respect to Arrow's Theorem in the theory of Social Choice.

First of all, there has been a stagnation in theory development:

"Tullock sees public choice as a subject in which there was a burst of interest from the 1950s to the 1970s, but which has now 'died out' (p39). The cause of death was the set of unremittingly negative conclusions that issued from the analysis of the Condorcet and Arrow paradoxes." Sugden (1999).

Secondly, it turns out that economists and Arrow himself gave a wrong interpretation to the mathematics. Below we will present a novel analysis with respect to the Arrow problem, and show that economists have run astray indeed. This gives another reason to be humble.

But, our discussion also provides clarity that social choice can be based on reasonable and morally attractive axioms. And thus there is a logical basis for a Court too.

œ

Evaluating in general:

- Looking at this circus, it would be wrong to be only entertained. The proper point to see - the real upshot of Krugman's books - is that the current government structure has little protection against this circus, the fads and fashions, the David Stockmans: and that this protection would be larger with a well selected Court. Note that the word 'court' has been chosen judicially: the job of this body is to make a judicious choice, a wise selection of all competing theories and approaches.
- It is useful to realise that the academia basically write for the journals, i.e. each other, and do not necessarily have the focus of analysing or predicting the national economy. Van Bergeijk c.s. (1997) point to these different focusses and the 'dangers' thereof. [25] The academic job also is to generate and test new ideas, not only the implementation of accepted theory.
- Another aspect of the distinction between the academia and practical policy

advice is that only the first have the luxury of saying that they 'don't know it'. In policy advice this luxury basically lacks, and a decision has to be supported with the best information available. Much academic criticism on economic policy advice is overdone, since it does not take this condition into account.

Also, economics has come far, and many economic models show similarities. So there is a body of 'existing economics' or 'accepted theory' and a rather firm scientific base. Let me indicate as such: the textbooks of Dornbusch & Fischer (1994), Mankiw (1992), Blanchard & Fischer (1989), Mueller (1989), research like Bruno & Sachs (1985), Layard, Nickell & Jackman (1991), Phelps (1994), and the practical work such as of the Dutch Central Planning Bureau (1990) (in which I participated) and Gelauff (1992). [26] [27] As Montesquieu for his *Trias Politica* referred to the existing example of England, we can point to Holland, where the Dutch Central Planning Bureau has earned itself a strong position, even to the extent that political parties have their programmes evaluated before elections. One can be severely critical of that CPB, precisely since it is no real Economic Supreme Court, but the current achievement is there, and is an argument for 'promotion'.

CS

If we regard the arguments for a court again, in the light of this evaluation of the record of economics itself, then:

The issue is not quite the difference between unfinished science and finished science. Even if economics were to be like engineering with some finished science - like Keynes's famous dentistry, where it would be easy to switch from one economist to another - then still there are always decisions to be made. How to interpret the data? Is factor X now crucial or not? Even if a science is finished, then its application to reality still is an art, and there are differences in the artists. One should realise that choices are made nowadays too, albeit hidden and not in the open, and with less scientific scrutiny as is advisable. Currently we have the President and Parliament deciding what will be the 'information' on which policy is based: and only too often they select that kind of presentation that suit their goals rather than the truth. The only suggestion here is to make procedures such that the result better serves democracy.

It is important to see that we are dealing with a natural monopoly here. When the government has to establish its budget and thereby wants to rely on science, then there has to be an instance at which it is decided what the current state of science is. Even if one would 'privatise' forecasting, and have universities compete in bids for the contract, then there still is the decision which university to take for this year. By definition there is a monopolistic situation for that decision maker at that moment. You cannot compete that away. My analysis and advice is to embed that authority in the Constitution, and provide warrants that the critical decisions are taken in scientific manner.

Thus crucially: If the government on the one hand would desire to use the results of scientific advice for its budget process, and on the other hand would not opt for an Economic Supreme Court, then its *definitions* would be logically inconsistent, and it would thereby tend to create a cause for dishonesty and improper manoeuvring and thereby corrupt its processes. [28]

We should realise that also law is no 'finished business'. Our ancestors have opted for an independent judiciary, even though there is no unanimity about formulations and interpretations. But precisely since there is no unanimity, we need an institute to make a decision - a court.

It will also be useful here to recall one of the key aspects of being a scientist: namely the responsibility to make up one's own mind. The scientist is in this respect as a judge. He or she has to balance all pro's and contra's, to review theories and facts, to replay all opinions of the colleagues, and then make a decision as to what he or she believes is the right thing to think. For example, to let one's opinion to be swayed by the opinions of others is unscientific. Now, in the light of the enormous complexity of an economy, and the additional complexity of human made theories about the economy, many academics have the liberty to choose not to 'believe' anything - except the logical consistency of the paper that they read or write. But in policy advice, this luxury, as said, is lacking, and much more scrutiny of what one really believes, in terms of probable effects and such, is required.

9. Economics 'as usual' and its inadequacy

Economists can be aware of the problems posed here; but then they tend to look for solutions *within* the given framework of the *Trias Politica*:

"There may be a communication problem. Using the words of Cairncross, again: 'Policymakers as a rule are slightly deaf: there is too much noise'. In other words, there is a need to raise the 'signal-to-noise' ratio. One cannot overemphasize the importance of the packaging — the simplicity and saleability of ideas and the need to pursue these in clear and non-technical language using simple diagrams, etc. Moreover, often the more important contributions of economic advisers are in the clarification of the most basic

and simple (simple only for us, professionals) concepts (...)” Bruno (1990:276)

The suggestion to my fellow economists is contrary: Thinking within the framework of the Trias Politica rather is a waste of time. It is like working from within astrology to arrive at astronomy.

cg

Above discussion is at the constitutional level. It is about the Trias Politica, the Great Depression and Stagflation, wars, and a suggestion of a constitutional amendment. Alternatively, there also is ‘economics as usual’, about prices and wages, growth and such. Part of the analysis can be presented in terms of ‘economics as usual’ - and then of course much of the political drama is lost. Part of the ‘usual’ argument can be indicated graphically.

Figure 1: Isoquants of national income

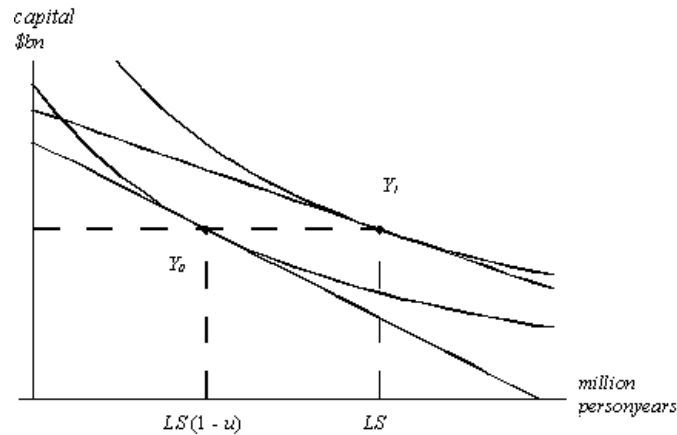


Figure 1 shows how national income is produced. Capital and labour combine in a production function and give national income. Capital is aggregated in dollars, labour in personyears. [29]

Let labour supply be LS and the unemployment rate be u . In the unemployment regime 0 only $LS(1-u)$ work, producing a national income of Y_0 in wages and profits. The slope of the tangent gives the price ratio of wages and rents. In regime 1 LS work, producing Y_1 . The rise of national income from regime 0 to 1 is the increase in efficiency from going from the lower to the higher isoquant. The graph clarifies about the improvement in efficiency that: (a) more people work, (b) total income is higher, (c) average wage costs are lower, indicating lower pressure on prices, (d) hence, when there is unemployment, then there is a possible improvement, that benefits some while it needn't hurt others.

The story of course doesn't stop with Figure 1, and is a bit more difficult. Some points need to be developed - just indicative, not extensive:

1. We have to show that (current) unemployment is inefficient indeed, and that it is not caused by technology or globalisation or labour market inflexibility (which would cause it to be a form of *efficient unemployment*).
2. Wages may fall *on average*, but the story for each individual is different. We have to deal with heterogeneous labour. And we have to develop the impact on inflation.
3. An econometric problem is that observations are based on observations of $LS(1-u)$, i.e. on the inefficient area, so that extrapolations towards the true efficiency frontier are difficult, especially when labour is heterogeneous.
4. Policy makers tend to see the decision process as a clash of preferences. When a tax reduction is proposed, to tackle unemployment, then this is translated in their minds into terms of the (re-) distribution of income - and then it is quickly opposed. So we have to deal with this source of misunderstanding too.
5. Though above uses a Bergson-Samuelson social welfare function, many economists are hesitant about that approach and refer to Arrow's theorem. This matter then needs clarification too.

cg

Indeed, I might present much of the argument along these ‘economics as usual’ lines.

But doing that makes part of the problem go away. We no longer see the dead of the two World Wars, the hungry of the Great Depression, the ruined lives of the Great Stagflation. We no longer see the devastation in Russia and many of the Eastern European Countries in the first decade

after the Fall of the Berlin Wall. Closing our eyes to these issues, would be closing our eyes to the evidence for the need for an Economic Supreme Court.

The critical observation is: If economics would not confront the serious problems of mankind, it would lose its relevance to democratic policy making, and would rather become disinformation and a veil for anti-democratic policy making. It would become an accomplice in economic policy stagnation.

10. Four empirical cases

If economics is a science, then it must regard *facts* as *sacred*.

Many economists don't quite understand this. When they see some unpleasant facts, they run, and start studying something else. Or they live in the corridors of power, and - like politicians - massage the facts, and make those fit the mold of the times. But running from a scary fact shows only a partial understanding of their importance. The proper attitude is to stare at the facts till they don't go away and till they aren't scary anymore, and then adjust theory to fit them.

Sometimes it is said that 'facts' don't say much, but that it is the theory that makes them tick. People have lived for ages with the 'facts' that the moon is 2D round and shows stages of illumination, but it took them almost as long to accept 3D roundness of heavenly bodies as a theory. Admittedly, it is hard to impossible to pinpoint a 'fact' without also invoking theoretical concepts. But it would be wrong to switch to the view that 'everything is theory'. Facts do exist, they can bite, and economists can be scared by them.

It is scary to economists that economic disaster can be related to the role of economics and economists.

cg

At a crucial moment in his life J.M. Keynes was what we nowadays would be calling a 'whistleblower'. As a civil servant and senior Treasury representative he served at the Versailles negotiations after the First World War. At a certain moment he resigned, and wrote *The Economic Consequences of the Peace* (1919). Many people thought that he should have kept silent given his position as (ex-) civil servant, and perhaps this played a role in his never becoming a full professor. I don't have the intention to resolve this issue. But a valid question is: Would it not have been better if we had had Economic Supreme Courts at that time, that because of their scientific agenda would have put Keynes's analysis up for discussion, that would have given him more protection, and that would have forced the other branches to answer to some questions?

Another example is Keynes's *General Theory* in 1936. Note that Hicks's simplification of IS-LM was available in 1937. Then the same questions.

The *General Theory* itself contains the famous lines: "Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back." (p383) He continues: "(...) there are not many who are influenced by new theories after they are twenty-five or thirty years of age, so that the ideas which civil servants and politicians and even agitators apply to current events are not likely to be the newest." Perhaps Keynes would have supported the idea of an Economic Supreme Court that keeps its knowledge up to date.

A third example is Jan Tinbergen's 1936 model of the Netherlands (vide Barten (1988), with p48 highly amusing). The same questions.

The fourth example involves my own person at the Dutch Central Planning Bureau (CPB) around 1989-1991. This book already wins the argument without mentioning my own experience, but it would not be correct not to mention it. This book presents an analysis that has been suppressed by that bureau with abuse of power - see also my biographical appendix. Then the same questions.

cg

Again, as above, there must be a warning about stagnation. My question "Would it not have been better if we had had Economic Supreme Courts at that time?" is, admittedly, quite rhetoric, and may

tend to sweep away deeper questions. It may suggest ideal Courts that always remain impartial and always come to the rescue. But also a Court can get stuck on misconceptions. Keynes and Tinbergen illustrate the point themselves by the famous criticism of Keynes (1939) of Tinbergen's method. Two of the leading economists of their times did not agree ! Indeed, this is a powerful argument to make the concept of a Court doubtful. (And they did not disagree on policy - more public works - but rather on methodology.)

cs

Interestingly, Frank Sulloway's (1996) "Born to rebel" argues, roughly put, that first-borns tend to be more conservative and that later-borns are more open to new scientific findings. Van den Berg (2004) calls this finding into question. But an Economic Supreme Court packed with conservatives could be a recipe for stagnation anyway. [30]

To be sure: my question of 'would it not have been better if...' is not intended to be rhetoric, and I grant that a Court at times will be slow to take up a challenge.

There however is a proper analogy: In the same way, occasionally, a fireman is caught causing fires himself. But this does not cause us to abolish the whole fire-department. As said, the appendix contains an example constitutional amendment that tries to find the middle ground, something that is workable and a huge improvement compared to the current situation.

11. The moral imperative

The modern economist entertains a sharp distinction between science and values. This indeed is a proper attitude, and also a crucial instance of the division of labour. It is up to Parliament and the President to set the course and make the value judgements - and once the ship's course has been set, economists will build the ship, rig the sails and do whatever necessary to get there. [31]

It is interesting to observe however that economists regularly express values. It is well-known that Marshall and Tinbergen were drawn to the subject out of a desire to understand the causes of poverty and 'do' something about it. Less well known may be this quote of Pigou:

"I would add one word for any student beginning economic study who may be discouraged by the severity of the effort which the study, as he will find it exemplified here, seems to require of him. The complicated analyses which economists endeavour to carry through are not mere gymnastic. They are instruments for the bettering of human life. The misery and squalor that surround us, the injurious luxury of some wealthy families, the terrible uncertainty overshadowing many families of the poor---these are evils too plain to be ignored. By the knowledge that our science seeks it is possible that they may be restrained. Out of darkness light! To search for it is the task, to find it perhaps the prize, which the "dismal science of Political Economy" offers to those who face its discipline." --- A. C. Pigou [32]

Keynes wrote the *General Theory* not only motivated by the beauty of economic theory itself but also against the backdrop of the Great Depression and the threat of communism and facism, and war. He even presented the GT somewhat in the fashion of 'either you accept my theory or there will be a world revolution':

"The authoritarian state systems of to-day seem to solve the problem of unemployment at the expense of efficiency and freedom. It is certain that the world will not much longer tolerate the unemployment which, apart from brief intervals of excitement, is associated - and, in my opinion, inevitably associated - with present-day capitalistic individualism. But it may be possible by a right analysis of the problem to cure the disease whilst preserving efficiency and freedom." - GT:381

What do we make of these value judgements ? Do these economists cross the line ? Do they wander in the perk reserved for politics ?

The answer is no. They only emphasise that society may be well willing to do something decent about unemployment and poverty, if only people had the knowledge. If the knowledge is lacking, then society faces a tough choice, and people in power will tend to look after themselves first. But with the knowledge, the situation is entirely different, and even those in power will be quite ready to help create the new prosperity. By doing so, they may also become popular, and gain or retain power. Note that it is not obvious or self-evident that the powerful will allow such change, but they might be persuaded to it.

Of course, in a sense, it could be considered a political act, when one provides crucial knowledge that changes a situation. But properly seen, this is just the *definition* of a scientist: to provide knowledge. Scientists can be knowledge (power) brokers - see also Throgmorton (1991). If one does not like this role of scientists, then throw out Montesquieu too.

In the same manner the economist can, with his or her knowledge, elucidate the moral problems of society. People may not be aware of certain choices that they implicitly make, and they will be grateful - though not necessarily happy at the first instance when responsibility dawns on them - when these choices are pointed out. The economist then again is only helpful in clarification. Though of course it is often wise to only try to clarify matters if one can predict that this will cause a change - otherwise much discussion and sweat will have been for nothing.

But clearly, the economist has to be protected by the Constitution to be able to perform his or her task of clarification, since new or seemingly contrary ideas always run the risk of misunderstanding and disproportional reaction.

œ

My analysis in 1990 was, vide Colignatus (1990a), and the first edition of this book in 2000 stated:

“In my analysis the moral imperative for the Western nations since the Fall of the Berlin Wall is to help the Russian and Eastern European peoples to recover from the brutal communist oppression that they have suffered. The best way to help is to allow trade. But the West is afraid for cheap products, and thus its own unemployment. And hence there are barriers to trade again. But the true cause of unemployment is not external, but internal to the West, internal in our system of economic policy making. It is the West’s own stupidity that causes hurt to others.”

The second edition of this book in 2005 witnesses the Enlargement of the European Union on May 1 2004. This is a great step in the right direction. There are still obstacles, however, if not internally to the EU then externally to the other nations.

The argument thus has not changed fundamentally.

Hence, the moral imperative for Western nations is to reconsider the Trias Politica structure of economic policy making. [33]

Book III

Economics ‘as usual’

12. Introduction

In ‘economics as usual’ we neglect the World Wars and concentrate on the current problem of stagflation. This book then also provides a novel explanation in this area - novel in the sense that it bundles the articles that have been written since 1989.

In the years after World War II, Western societies created systems of social security - the ‘Welfare State’ - and for a while it seemed as if they could do so without serious economic consequences. From a macro-economic point of view, they hoped to enjoy growth, full employment and low inflation. These indeed happened in the golden years 1950-1970. However, there arose the problem of stagflation around 1970, i.e. the combination of high unemployment, high inflation and stagnating growth. Around 1980, unemployment and inflation reached double digit values. Other economic indicators in the red were budget deficits, high interest rates, and the crowding out of private investments. Adjustment to these problems has been difficult and slow. The economic performance around 2004 is a major improvement from the worst episode, but the progress seems to be stagnating. The ongoing discussion in policy making circles during all these years is how the Welfare State arrangements are related to these economic problems, and what the proper policy reaction should be.

Welfare state economics differs from ‘traditional’ macro-economics in that there are more arrangements that protect individuals from insecurity and that entitle them to benefits. Welfare state economics however does not differ from ‘traditional’ macro-economics in the respect that the basic laws of economics cannot be changed. Generous

as arrangements can be, people fundamentally still react to incentives. Welfare state arrangements tend to reduce the base of the economy of those participating in the workforce and they increase the burden on those. The welfare state also tends to generate more unemployment and inflation. While unemployment would 'traditionally' cause people to lose their income and thus to be more cautious with their wage demands, in the welfare state they receive an unemployment benefit and may continue to insist on high wages. These points can readily be verified from comparing the results of the EU and US economies, where the EU is more of a welfare state and where the US has more traditional features.

Not surprisingly, there has been much debate about the sustainability of the welfare state. The US economy clearly is more dynamic and in many respects also more successful and innovative than the European economy. In this debate, a wide range of issues is discussed, from trade to investments, technology, monetary policy, migration, and so on. All these features indeed are very important for a balanced economic judgement. A common conclusion remains that employment plays a key role, as is for example witnessed by the OECD (1994) "Jobs Study", the OECD Economic Studies 31 (2000), OECD (2003), to name a few. This conclusion actually is not so surprising, since the very definition of the welfare state suggests that it tries to protect people from the uncertainties of the job market rather than anything else.

Many people accept these days that Western economies have a problem with jobs with a low level of productivity and thus a low level of market-earned income. The United States tolerate more poverty while Europe sets its minimum wage much higher so that Europe has more unemployment. This problem with low productivity jobs finds various explanations, notably those of technology, globalisation and labour market inflexibility - or 'welfare state sclerosis'. Policies based on these explanations have been enacted for some time now. For quite some time, in fact; while little is being achieved. It is proper that we pose the question: why is it that we don't achieve much? [34]

The novel analysis presented in these pages finds the problem and answer in *taxes*. [35] As noted, benefits have to be financed, and the tax arrangements have a key impact on incentives and costs. We will focus on the influence of taxes that runs via the labour market, both directly by 'labour taxes' and indirectly by 'consumption taxes' that also affect the cost of labour. The emphasis in our study is on dynamics where interactions have more time to take hold. The idea of this present study is that by proper management of tax dynamics, the economy could become more efficient, in both the EU and US alike, so that ultimately the drawbacks of a welfare state can find a better balance with its advantages.

Obviously, when this analysis is new, then it has not been recognised before, and then it has likely been missing in policy. And policy that was based on a wrong analysis, is likely to have been the cause of the very problem that it wanted to solve.

The emphasis on taxes does not mean that technology, international trade and labour market inflexibilities are irrelevant. It does not mean that we can throw away the current macro-economic models. On the contrary: the emphasis on taxes is only an amendment to the current models. The tax analysis would be meaningless without these current models. I myself participated in the construction of the CPB (1990) Athena model, a sectoral model of the Dutch economy with 7000 variables, and I would be the last one to suggest that only taxes matter!

Though the amendment sounds simple, there still are grounds to cover. Unemployment obviously has a much longer history than the current problem. Also, the Western track record on unemployment can only be understood when the record on inflation is taken into account too. A wrong diagnosis of the cause of unemployment would also have its effects via the anti-inflation policy of the monetary authorities.

Stylized history

Consider the empirical evidence since 1950. This track record coincides with decades:

- The 1950s had low unemployment and low inflation, and high real growth.
- The 1960s had the threat of unemployment, and governments accommodating inflation in order to actually prevent it.
- The 1970s nevertheless had mass unemployment bursting into the open, and governments accommodating high and accelerating inflation to battle it. Growth

is volatile.

- The 1980s had governments come down hard on inflation, while they accept high levels of unemployment and stagnating growth as the price for stability.
- The 1990s-till-now: There are different reactions on both sides of the Atlantic. Europe appears reluctant to dress down the welfare state, accepts high minimum wages and more unemployment that is partly hidden in Welfare State programmes. The USA appears willing to accept more poverty. (This difference in regional reactions started already earlier, but is clearest in this period.)

One sees a certain “trade-off” between unemployment and inflation. Figure 2 reviews the official data for the United States and Figure 3 for the Netherlands for 1950-2001. [36] For both countries, the official values for the 1950s and 2000s are in the same lower left and favourable region, but they have been far outside of it during the years in-between. [37] Since the official statistics in the 2000s have returned to the favourable lower left region, the natural question to ask is whether stagflation has been defeated. Figure 4 reviews the situation in the Netherlands, where the official values have been extended with those on the labour force ‘not working’. [38] One can suspect that Welfare State programmes can hide unemployment.

In macro-economics, the relation between unemployment and inflation is expressed in the *Phillipscurve*. Next to the standard (wage-) Phillipscurve there is the (price-) Phillipscurve that gives the relationship between unemployment and (consumer) prices (and that relies upon a dependence of prices on wage-costs). A more extensive (participation-) Phillipscurve links the development of wages and prices to unemployment or ‘not-working in general’. Understanding the relationships of the curves is subtle: it is not just the inclusion of the numbers, but rather the effect on the market. Notably, when ‘disability’ means a reduction of the workforce, the remaining workers face less competition and might raise their wage demands (see Figure 4).

Figure 2. The unemployment - inflation space 1950-2001, United States

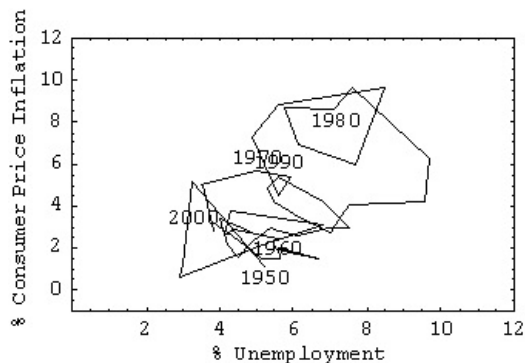


Figure 3. The unemployment - inflation space 1950-2001, Holland

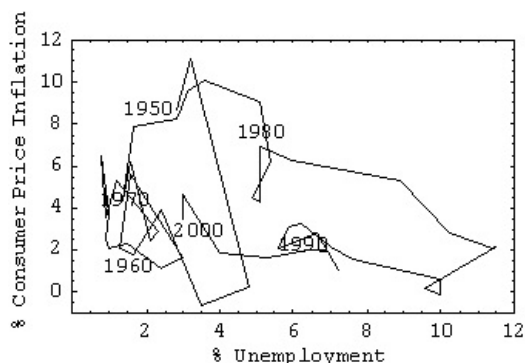
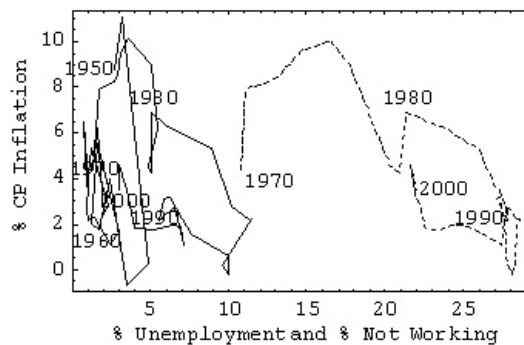


Figure 4. The Netherlands, ‘official unemployment’ (drawn) and ‘not working’ (dashed)



Above rough division in decades suggests, as said, some 'trade-off'. There is a discussion among economists whether such a 'trade-off' really exists, and in particular for the short run, but, with this division in decades, it cannot be denied that there are some systematic choices involved. Our object of study, stagflation, can be rephrased by observing that the Phillips curve apparently has shifted to a higher and unfavourable position.

The authors Okun (1981), Hebden (1983), Blanchard & Fischer (1989), Friedman (1991), Phelps (1994) help to put the Phillips curve in perspective. Extensive empirical work has been done by the Central Planning Bureau (1992a&b).

Okun (1981) emphasises the stability of the US Phillips curve over the 1954-1969 period, but accepts that wages and prices thereafter are less flexible in the short run, due to 'implicit contracts' and 'invisible handshakes'. Referring to Friedman and Phelps he notes: "In the sense that all economists must recognize that adverse shift of the short-run Phillips curve, they have all become accelerationists now (to reverse Friedman's celebrated concession to Keynes)." (p239). Rather than getting lost in finding proper functional formats, Okun concentrates on formulating various elements that are important for policy making, indicating that a whole range of instruments must be used. The minimum wage gets short mention, but is not considered in relation to the Phillips curve.

Hebden (1983) gives a recommendable review of econometric issues and empirical work (till that time) on the Phillips curve, including (a) the original article by Phillips, (b) papers that remain close to his format, and (c) papers that include trade union influence and price expectations. Hebden notes:

"Models that seek to explain the causes of the inflation that has been experienced in the recent past, and hold out the possibility of helping economists to predict and maybe control inflation in the future, are sought after eagerly by economists and politicians. Many models have been produced and a fair degree of unanimity has been found as to the mechanics of the relatively mild inflation experienced in Britain in the 1950s and 1960s. But when inflation accelerated, in this country as in most of the industrialised world, in the mid-1970s, those models were unable to cope; and though almost a decade of 'hyperinflation' has passed since then, no model that adequately explains its causes has yet been found." (p158)

Blanchard & Fischer (1989) note:

"The Keynesian framework, embodied in the "neoclassical synthesis", which dominated the field until the mid-1970s, is in theoretical crisis, searching for microfoundations; no new theory has emerged to dominate the field, and the time is one of explorations in several directions with the unity of the field apparent mainly in the set of questions being studied." (p27).

On the Phillips curve they note:

"The contemporaneous correlation between innovations in wage inflation and GNP is, however, positive and significant: it is this correlation that underlies the Phillips curve, which plays a central role in theories of the business cycle that allow aggregate demand disturbances to affect output." (p19). [39]

Their discussion is critical and enlightening, but does not involve the role of the minimum wage. On p551 they discuss the high European unemployment, but then refer to the Layard & Nickell 1986 & 1987 model, concluding, a bit non-committingly:

"The Layard-Nickell model provides an example of how to relate the theories developed in this book to the data. It suggests a complex set of causes for high unemployment in which both demand and supply factors play a role and the labor market's own dynamics explain the persistence of high unemployment with nearly stable inflation." (p555).

Our analysis will allow a stronger conclusion. From the 1950s till the beginning of the 1990s the common view among economists and policy makers tended to be that the unemployment in the trade-off was “general” unemployment. This is not quite true for all economists, but many made this simplifying assumption. Nowadays we tend to link unemployment to lowly productive labour. For us it may be obvious, but compared to the earlier view of many it is a change of perspective that the once-thought-to-be “general” unemployment now turns up as a rather specific type. To make this change specific: we will hold that the unemployment in the trade-off has *always* been related to the distribution of productivity across labour.

Structure of the argument

The crucial insight is that the people who can demand pay rises need not be the people who run the risk of unemployment thereof. High productivity workers run less risk of unemployment and can more easily demand pay rises, while low productivity workers run the larger risk of unemployment. High productivity workers are more versatile and are able to shift the risk of unemployment to the lower income groups. When jobs are scarce, the high productivity workers even crowd out others from the labour market. [40]

The policy rule on taxes is: don’t tax low productivity labour. Why ? To keep it employed so that more productive labour will meet more competition and will not demand inflationary pay rises. In Europe, taxes on low productive labour are still high, causing a high minimum wage that causes unemployment. These taxes could be abolished, and without costs, since these workers are unemployed anyway. Similarly, marginal tax rates are less a problem than often said. The proposed alternative policy provides an improvement on both unemployment and inflation, exactly the kind of policy measure required for in the current situation.

This analysis is not common knowledge. It is missing in the economic journals, it is missing for example in Borjas’s (1996) much used textbook for undergraduates. Borjas (1996:441) states: “The minimum wage, however, affects mainly less-skilled young workers, so it is difficult to attribute much of the unemployment problem to minimum wage legislation.” [41] For policy makers, the OECD (1998) reports: “The cross-country evidence suggests that the minimum wage has no significant impact on overall adult employment.” though OECD (2000) is more guarded, see chapter 44. We will show however that a minimum wage can have huge ‘multipliers’.

The difference that it means

It is useful to clarify the difference between current macro-economic policy in Western nations and what macro-economic policy can be according to this book.

Current macro-economic policy:

- accepts unemployment as a consequence of **low inflation** and **reduced deficits**
- sees the likely cause of unemployment in **technology, globalisation** and **labour market inflexibility**
- focusses on **aggregates** and **averages**
- discusses the **distribution of wages** mainly in terms of **income (in-) equality**.

The new macro-economic policy:

- sees a way to combine low inflation and balanced budgets with **full employment**
- sees the cause of current unemployment in **the system of taxation**
- focuses on **distributions**
- discusses the **distribution of wages** in its relation to **productivity** and **unemployment**.

Table 2 tabulates the differences.

Table 2: Differences between current and possible policy

	<i>Current policy</i>	<i>Possible policy</i>
<i>low inflation & low deficit</i>	accepts unemployment	full employment
<i>cause of unemployment</i>	technology, globalisation and labour market	system of taxation

<i>method</i>	inflexibility	
	aggregates & averages	distributions
<i>distribution of wages</i>	income equality	productivity & unemployment

The new analysis means that we get a different perspective on the existing models.

For example, a current argument in Holland on labour market inflexibilities is that the replacement rate is too low. There would be a so-called poverty trap. People in a benefit situation would have little incentives to accept a job offer, since they would earn hardly more. This is regarded as a supply issue, and since one cannot raise wages (which would increase unemployment), the only solution seems to be the reduction of benefits. This was actually the statement of the Dutch Minister of Social Affairs at the presentation of the Dutch National Budget in September 1999. Even the small Socialist Party (SP) accepts this view, vide its January 2000 internet site. The Minister and the opposition party however are misguided and badly advised. In the proper analysis the problem is crucially different. If there would be sufficient jobs then there already are regulations that people can be fined for not accepting a job offer. This fine creates an incentive of 30% in a warning stage and eventually 100% by full withdrawal of the benefit. So the problem is rather that there are insufficient job offers - with sounds more like a demand problem. By manipulating taxes, it is possible to reduce gross wage costs - and increase demand - while still allowing for a decent net income.

Another point of attention is the word 'unemployment'. Holland in 1999 features an 'official unemployment rate' of about 3.2 %. It seems as if unemployment is no problem for Holland. As an economist I however cannot accept the sausage that the Statistical Office (in this case the Dutch CPB and CBS) here present. (1) Dutch 'official disability' is about 10% of the true labour force, (2) people older than 55 years are often excluded from the 'official labour force' too, (3) many people work part-time since they cannot find a full-time job, (4) many women will not work outdoors since childcare is too expensive because of the wrong wages, (5) etcetera. Many economists classify these issues under the denominator of 'participation', and then agree that Holland has a participation problem. However, in proper economic terms it is unemployment: people who would want jobs but cannot find them. I urge the statisticians to remain servient to economic science, as they claim they are, rather than servient to politics and disinformation.

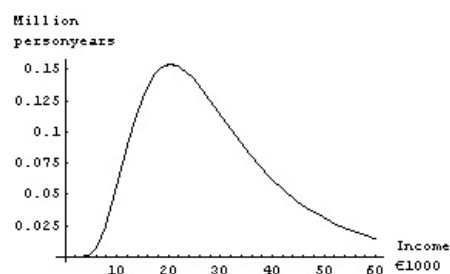
13. Unemployment via taxes and minimum wage

Let us see in stylized fashion how it went wrong in 1950-2005. Our discussion uses Holland as the example to clarify the general OECD situation. The discussion will also use simplifying assumptions and few footnotes, to keep the text transparant. These defects will be remedied in the subsequent chapters.

Key aspects are:

- heterogeneous labour, and the use of an earnings distribution
- the minimum wage and unemployment
- decomposition of the minimum wage in subsistence and tax burden
- analysis of the Tax Void
- differential indexation
- dynamic marginal tax rates
- consequences for the macro model: spillover and domino effects.

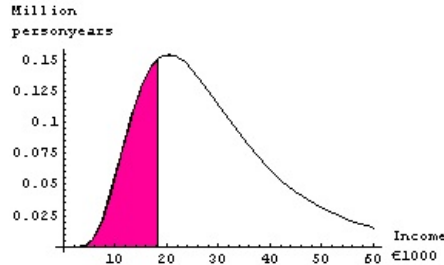
Figure 5: Earnings distribution



The earnings distribution

Figure 5 gives an earnings distribution of a standard lognormal shape. The figure approximates the situation in Holland 2002, though without parttimers. With each level of income there is a number of ‘personyears’ of people who earn that level. The earnings distribution can be used to compute how large unemployment will be below the minimum wage. Figure 6 gives the situation for the Dutch minimum wage of about € 18.3 thousand. Since Dutch unemployment is about 25% of a potential labour force of 8 million people, the graph conforms to the facts. [42]

Figure 6: Unemployment below the minimum wage



Analysing the minimum wage

We wonder how the minimum wage comes about. We see two terms in the minimum wage, as can be seen in equation (13.1a) and its explanation:

$M =$ minimum wage [43]	(13.1a)	$M = B + T[M]$
$B =$ subsistence [44]		
$T =$ arbitrary tax function	(13.1b)	$Bentham[y] = r(y - x)$ for
$Bentham =$ Bentham tax function [45]		$y > x,$
$y =$ an arbitrary level of income		$= 0$ for $y \leq x$
$r =$ marginal rate	(13.1c)	$Net[y] = y - T[y]$
$x =$ exemption		

The minimum wage provides subsistence and thus consists of that net minimum and the taxes at that minimum, which is expressed by (13.1a). Since net income must be larger than B , this means for the Bentham function:

$$y - r(y - x) \geq B \quad \& \quad \text{equality at } M \quad \Rightarrow \quad M = (B - rx) / (1 - r)$$

Malthus has subsistence B enforced by nature. Under current rules of (European) welfare states, B can be higher, since people who cannot earn subsistence B are entitled to a benefit of that level. [46] Table 3 gives the Dutch example.

Table 3: Tax wedge at subsistence (single person)

<i>Dutch legal minimum wage 2002 (per annum)</i>	€
Gross minimum wage in the official statute	15,638
Net, after deduction of taxes incl. premiums for the employee (single person)	12,516
Gross minimum wage: gross + premiums for the employer	18,265
All taxes incl. premiums (though exclusive of VAT etc.)	5,749
Tax as a percentage of gross minimum wage	31.5 %
Tax as a percentage of net income	45.9 %

The Dutch situation is depicted in Figure 7, the *tax plot*. The horizontal axis gives income y , the vertical axis the tax t . The tax line $T[y]$ gives the Dutch tax brackets. Net income is given by the difference between the tax and the 45-degrees line ($t = y$). Subsistence causes the line $y - B$ parallel to the 45-degrees line. This line cuts off a part of net income. The intersection of the subsistence and tax lines gives $y - B = T[y]$, and this solves into the minimum wage $y = M$. You must earn at least M to satisfy the minimum net income requirement B .

Figure 7: Tax plot

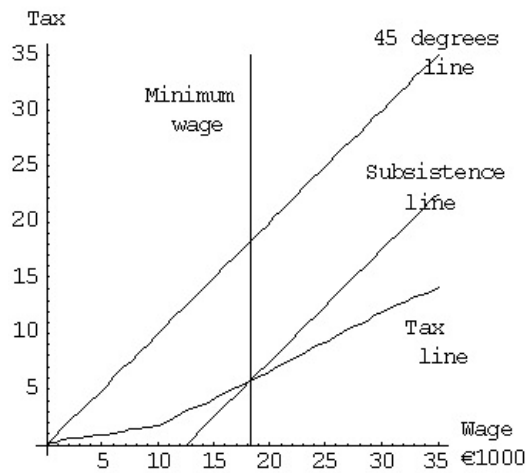


Figure 8 clarifies that the minimum wage means that there are no full time wage earners below M , so that tax and net income are only relevant above it.

Figure 8: Tax plot revisited

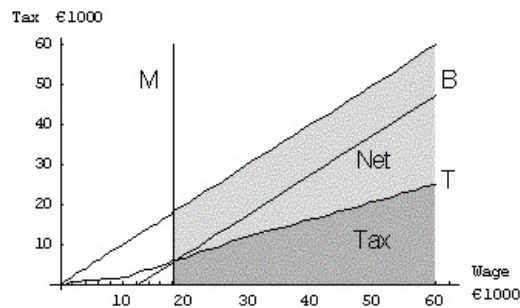
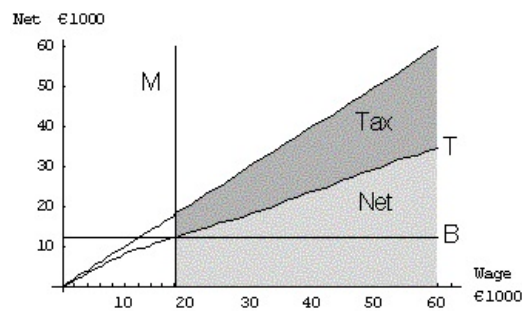


Figure 9 gives the same result but then as a *net income plot*. The horizontal axis gives income, the vertical axis net income. The tax is given by the difference between net income and the 45-degree line. Subsistence now is a horizontal line at B . The intersection of the B -line and the net income line gives the minimum wage M . You must earn at least M to satisfy the minimum net income requirement B .

Figure 9: Net income plot



The Tax Void

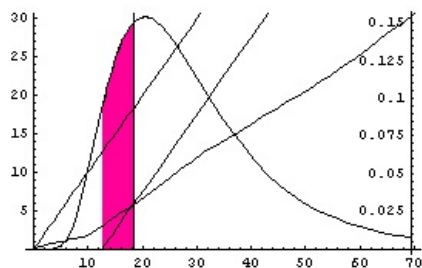
Let us now combine the earnings distribution and the tax plot.

Note that the tax figures have shaded areas only above the minimum wage. The tax appears effective *at* and *above* the minimum wage, but not *below* it. Though taxes are defined below the minimum wage, there are no taxes collected, since people are unemployed below the minimum wage. The clear area from net minimum till the gross minimum wage M can be called the **Tax Void**.

The difference between net and gross is called the tax wedge, and it is generally seen as a vertical jump. There is a change of perspective now, in that we see it also as a *range*, particularly relevant for the minimum wage.

In the Tax Void the tax code has only a paper function (in terms of tax collection). The tax code helps to drive up the minimum wage, but it does not collect any revenue. Abolishing taxes in this area therefore does not cost anything too. Note that abolishing the tax void would mean that exemption would be chosen at subsistence.

Figure 10: Tax Void Unemployment



Part of unemployment below the minimum wage is still above subsistence. If taxes would be abolished in that section, then the affected people could still earn a living wage, and need no income support. This kind of unemployment can be called the Tax Void Unemployment. Figure 10 gives a plot of that section (shaded) for Holland.

For the record: the Dutch minimum wage only holds for fulltimers, and not for parttimers. Holland has a lot of parttime work (for that reason). We have eliminated parttimers from the present analysis.

Cause of the Tax Void

How has the tax void come about ? Since abolishing the tax void does not cost anything, and would generate a lot of employment, why don't we abolish it ? Why do we continue the present absurd situation of mass unemployment ?

It appears that the situation has come about gradually, by a mechanism that is difficult to observe directly. It involves the co-ordination of tax policy with social policy, specifically the indexation of taxes and subsistence.

First note that OECD countries adjust their taxes for inflation, see OECD (1986). Tax exemption in 2002 will often be close to the inflation-adjusted real value of 1950. On the other hand, research in social psychology shows that subsistence tends to rise with the general level of income, the growth of which consists of inflation and real growth (or real net income). So there is "differential indexation". In the 1950s exemption was pretty close to subsistence, so that there was no void to speak of. Since then, exemption has lagged behind the standard of living. When tax exemption lags behind net subsistence, then there is a multiplier effect on gross subsistence, with an accelerated increase of the tax void. This process also explains the 'squeezing of income differentials' in OECD countries.

Holland is the example again. In 1951, exemption for a single person household was € 354 and for a couple without children € 463. At that time there was no official minimum wage, but it can be taken at that value. The price level in 2002 (1951=1) is 6.25 and the wage index 2002 is 25.59. This allows us to construct Table 4.

Table 4: Development of tax exemption in Holland

Euro's	1951	1997	2002
Inflation index (%)	100	545	625
Wage index (%)	100	2082	2559
Exemption, single person	354	3223	8025
Idem, price adjusted	354	1930	2211
Idem, wage adjusted	354	7369	9060
Exemption, couple without children	463	6445	*13116
Idem, price adjusted	463	2524	2892
Idem, wage adjusted	463	9638	11850

* Dutch readers can find the computation in Colignatus & Hulst (2003)

Till 1997, official exemption € 3223 lagged strongly behind the wage adjusted 1951 value € 7369. In recent years the gap has been reduced, but the 2002 official exemption of € 8025 still lags more than € 1000 behind the wage adjusted 1951 value. Most important, it lags € 4500 behind the (single person) net minimum wage of € 12500.

Taxes

If we index tax parameters on inflation only, then this affects exemption x in the Bentham tax function, and thus x should be included in the function call.

P = price index	(13.2a) $x = x[0] xi P$ (and here $xi = 1$)
$x[0]$ = exemption at the base year	(13.1b') $Bentham[y, x]$
xi = real exemption index	(13.2b) $Bentham[y, x[0] P] = r(y - x[0] P)$

We also write the tax function as $T[y, x]$ and net income as $Net[y, x]$.

Subsistence

The indexation of subsistence differs from other incomes. When wages follow, on average, an index wi , the real subsistence index rsi commonly follows the net average wage, i.e. the wage after taxes.

W = the average wage (nominal)	(13.3a) $W = W[0] wi = W[0] rwi P$
$W[0]$ = the average wage in the base year	(13.3b) Subsistence = $B = B[0] rsi P$
wi = wage index = $W / W[0]$	(13.3c) $rsi = rnai = Net[W] / P / Net[W[0]]$
rwi = real wage index = wi / P	(13.3d) $rsi = \frac{(1-r)rwi + rh}{1-r+rh}$
$B[0]$ = subsistence in the base year	
$h = B[0] / W[0]$	
rsi = real subsistence index	
$rnai$ = real net average wage index	

Deduction of the real net average income index

We choose the base year so that $x[0] = B[0]$. Let $W[0]$ be the average wage in the base year, and let $h = B[0] / W[0]$ be the base year ratio with subsistence. Then the index of real (net) subsistence rsi is set to the index of the real net average wage $rnai$, and is (proving (13.3d)):

$$rsi = \frac{Net[W, x] / P}{Net[W[0], B[0]]} = \frac{(W - Bentham[W, x]) / P}{W[0] - Bentham[W[0], B[0]]}$$

$$= \frac{rwi W[0] - r(rwi W[0] - B[0])}{W[0] - r(W[0] - B[0])}$$

with $B[0] = W[0] h$:

$$rsi = \frac{rwi - r(rwi - h)}{1 - r(1 - h)} = \frac{(1 - r)rwi + rh}{1 - r + rh} = rsi[rwi, r, h] \quad (13.3d)$$

For example, if base subsistence is half the base year average wage, $B[0] = \frac{1}{2} W[0]$ then $h = 0.5$. When $r = 0.5$ then $rsi = 0.33 + 0.67 rwi$.

With h and $B[0]$ given, the causal chain is $\{rwi, r\} \rightarrow rsi \rightarrow B \rightarrow M \rightarrow u$. [47]

When all incomes grow as fast

Before we continue it is useful, however, to first clarify a formal property for the Bentham tax function.

Property (13.3e): For the Bentham tax function: There is equal growth of gross and net income, if and only if exemption is indexed on either.

Note: The distinction between (13.3d) and (13.3e) is that the former indexes $x[0]$ on P only, and the latter indexes $x[0]$ and $B[0]$ on $wi = P rwi$.

Corollary: Under (13.3e): If the income distribution remains the same (all incomes grow with the same rate) then also the average income, $y = W$ grows at the same rate, and then also the net income distribution remains the same, and then the ratio of net average to subsistence remains the same too. Note: Western nations thus could wisely index subsistence and exemption on gross average income.

Note: These relations seem obvious enough, but actually proving it

turned out to be a bit tedious.

Proof: Denote $y[+1] = (1+gr) y = g y$ for growth rate gr , and $Net[y[+1]] = n Net[y]$ (both g and n one period indices).

Net income with the Bentham tax is $Net[y[+1]] = g y - r (g y - X)$ with X the new exemption. This should be equal to $n Net[y] = n (y - r (y - x))$. Thus n is defined by:

$$g y - r (g y - X) = n (y - r (y - x))$$

(\Rightarrow) Take $z = g = n$. Then $z y - r z y + r X = z (y - r y + r x)$ and this gives $X = z x$.

($\Leftarrow g$) Take $X = g x$. Then $g y - r(g y - g x) = n (y - r (y - x))$, so that $n = g$.

($\Leftarrow n$) Take $X = n x$. Then

$$g y - r(g y - n x) = n (y - r (y - x))$$

$$g y - r g y + r n x = n y - n r y + n r x$$

$$g y - r g y = n y - n r y$$

$$g (1 - r) y = n (1 - r) y$$

$$g = n$$

Q.E.D.

Development of the Tax Void

These formulas call for a graphical illustration. We only need data on rwi , r and h for a stylized display. We will take $r = h = 50\%$. Then we need data on rwi , and we can use our example of Holland.

Graphical presentation of the Dutch data

Appendix Table 20 gives the required data on the Dutch economy. Dutch 1951 exemption can be taken as 1951 subsistence. Before we use the data for the formula, let us first see what they mean. Figure 11 and Figure 12 on inflation P and real income growth $rwi = wi / P$ show that the data fit above classification of subperiods for inflation and real income behaviour.

Figure 11: Continued inflation, stagnating real wage

Holland, 1951 = 1

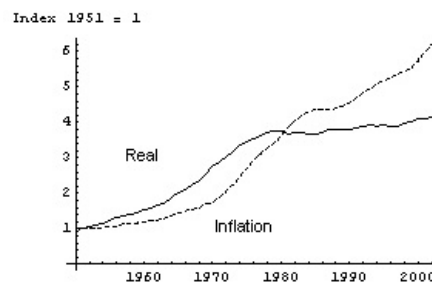
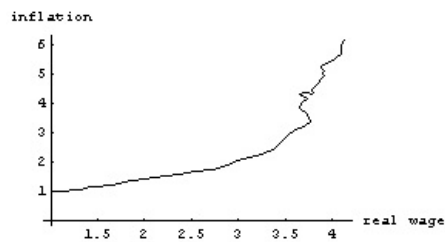


Figure 12: Inflation plotted against the real wage

Holland, 1951 = 1



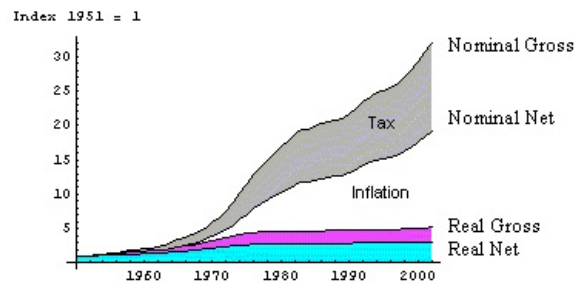
Using the data for our analysis

We now use the data for our analysis. There are four combinations of gross/net and real/nominal. This results into Figure 13. 'Subsistence' is always measured as a net term, and 'minimum wage' as a gross term. For Holland, we find that real subsistence has risen about 4-fold since

1951, and the nominal minimum wage more than 30-fold. The computed nominal minimum wage relates well to the factual 2002 minimum wage. Not only inflation accounts for the rise, but also an increased tax burden (that encounters inflation again).

Figure 13: Different indices at the minimum [48]

Holland, 1951 = 1



It was the slow rise of subsistence B and the lagging of exemption x in the 1950-1975 period that caused a multiplied rise of M , creating the Tax Void. Also, since the earnings distribution is nonlinear (lognormal), there was an even sharper nonlinear increase in unemployment.

Figure 13 shows that the real values stagnate since about 1980, and that the development since then is determined by inflation. Since inflation does not occur in the rsi index, the real situation is stable. For example, the gross-to-net ratio at the minimum since 1980 is quite constant.

Note too that this in a sense presents a difficulty. The problem with the minimum wage was caused before 1980, and policy makers wanting a solution in 2002 will rather look at the last decennium rather than to the 1950-1975 period.

Marginal tax rate & VAT

While the above considers exemption x , the analysis can be extended with an analysis on the marginal tax rate r .

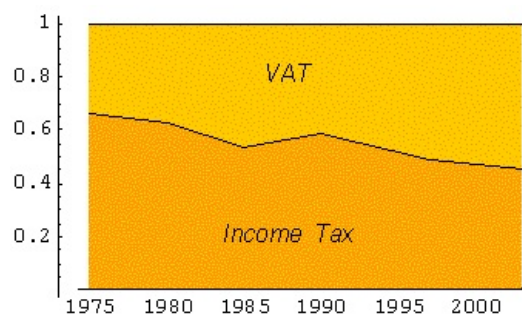
Many economists hold that a high marginal tax rate is a disincentive for labour effort. They frequently propose a change from the income tax to the Value Added Tax (VAT). If we assume the same total tax revenue then the VAT might allow for a lower marginal tax rate, for the reason that the VAT has no exemption. At least, that is commonly conjectured.

Above analysis already exposes one flaw to the argument 'in favor of the VAT'. Having no exemption means a higher minimum wage ! So, those tax theorists who propose a shift from income tax to VAT tend to neglect an important part of labour market economics. Note that a higher VAT on luxury cars does not affect the subsistence worker who cannot afford these, and hence there is some truth in the statement that a VAT sometimes can be preferred. However, once we have solved unemployment by proper labour market policies, the discussion about income tax or VAT could be done in terms of fiscal properties only, and it might quickly appear that a low VAT of say 5% suffices. [49]

Secondly, it is said that a VAT taxes profits too and thus seems to allow a general reduction of the price of labour. But it raises costs disproportionately for the lowly productive (who generally work with less capital).

Figure 14 shows the development of the relative revenue shares of Dutch income tax and VAT for a selection of years (i.e. 1975, 1980, 1985, 1990, 1997 and 2003). The Dutch minimum wage problem has worsened also by this development.

Figure 14: Revenue shares of income tax and VAT



Marginal tax rate & dynamics

I agree with the basic idea about the disincentive effects of marginal tax rates. Namely, economic theory assumes maximising agents, and the condition for a maximum can normally be expressed in terms of marginals. However, the marginal must be computed correctly. Above marginal rate r is only a static rate, that applies to a specific regime, for example a specific period. However, tax rates are adjusted from year to year. A dynamic situation requires a dynamic analysis.

Let $\Delta y = y - y[-1]$. Then the proper (dynamic) marginal tax rate is $DMR = \Delta T / \Delta y$. For the Bentham function:

$$DMR = \frac{Bentham[y,x] - Bentham[y[-1],x[-1]]}{y - y[-1]}$$

Generally the dynamic marginal is lower than the static marginal. In fact, when tax parameters are indexed in a certain way, then the tax can have the same growth rate as income, and then the dynamic marginal rate equals the average tax rate. This holds for individuals and for the macro data if all individuals are on a balanced growth path. Let the balanced growth rate be bgr :

$$\Delta T / T_{-1} = bgr = \Delta y / y_{-1} \Leftrightarrow \Delta T / \Delta y = T_{-1} / y_{-1} \quad (13.4)$$

The following is a small example of how a dynamic marginal rate can equal a normal average. Let exemption be \$10000, and let the statutory marginal rate thereafter be 50%. Someone earning \$50000 pays the tax of \$20000, on average 40%. Let all incomes grow 5%, and exemption be indexed on national income. Then exemption becomes \$10500, income \$52500, tax \$21000, again 40%. Thus on the (dynamic) "marginal dollar" this person doesn't pay 50% but 40%.

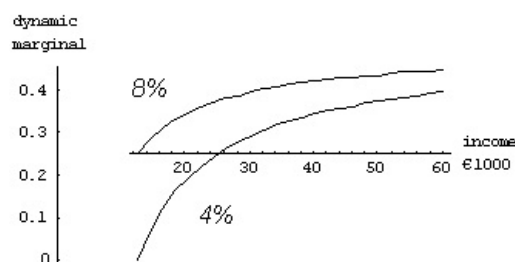
For the Bentham tax function we can derive a simple expression for individual growth. We are most interested in expected developments. Let personal income grow by rate α , so that $y[+1] = (1 + \alpha) y$, and let exemption be expected to be adjusted by rate β , so that $x[+1] = (1 + \beta) x$. Then we find:

$$DMR[+1] = \frac{Bentham[(1+\alpha)y, (1+\beta)x] - Bentham[y,x]}{(1+\alpha)y - y} = r \left(1 - \frac{\beta x}{\alpha y}\right)$$

Let us regard the dynamic marginal rate for a Dutchman in 2002 who considers an increase in work effort for 2003 (and beyond), and let us assume a regime of sound economics. In the ideal case, exemption in the base year is put at subsistence, in this case € 12.5 thousand. Ideally, subsistence rises with income, and not just real net average incomes. This ideal implies that exemption is adjusted not just for inflation, but for the nominal growth of income. Let us assume this ideal, and let us assume that national nominal growth is 4%, for example consisting of 2% inflation and 2% real growth. Let us then regard the situation of a single economic agent. He knows that next year exemption will be adjusted with 4%. He has to judge whether it is worthwhile to him to invest or to increase labour effort, so that his income will rise. If his personal income rises with 4%, then his dynamic marginal will be equal to his present average tax rate. If his personal income rises by 8%, then his dynamic marginal will differ; it will depend upon his actual income level, but anyway will be less than the statutory marginal rate of 50%. Figure 15 gives the plot of the dynamic marginal for those two rates, for various levels of income. The 4% line here also gives the average tax level.

Figure 15: The dynamic marginal rate

Individual income grows at 4% or 8%, while national income grows at 4% and the statutory marginal rate is 50%



Empirical analysis often shows marginal rates to be less relevant - and average tax rates to be more important - than 'common theory' claims.

This analysis on the dynamic marginal provides a useful part of the explanation.

Spillover and domino effects

Above analysis concerns minimum wage unemployment. The next question is how this relates to other kinds of unemployment.

It is useful to observe that the analysis in these pages is new. Concepts like the tax void, differential indexation and dynamic marginal tax rates, and the insights on their interaction, are really new, and have been concocted by me in a search for new scientific results. That means that governments have not incorporated these concepts in their policy making (even though the occasional civil servant may have been aware of some phenomena). Policy making up to now has been based upon a different analysis, and, alas, by being different from the right analysis, the governmental analysis is a wrong one. This is not without consequence. By analogy, when a patient gets a medicine based on a wrong diagnosis then the illness may get worse rather than diminish. In the present case, the tax void unemployment has important spillover or domino effects on unemployment above the minimum wage, and the channel of transmission is the misguided policy reaction up to now.

For example, in the 1970s governments tried to stimulate the economy by incurring big deficits, but they ended up with inflation. In the 1980s and 1990s governments opt for low inflation, and they end up with high real rates of interests and mass unemployment in Europe and poverty in the United States.

For example, Dutch economic policy is based on a general restraint on wages. This policy has fueled Dutch exports and reduced Dutch imports. The general restraint in fact subsidises exports, and Holland runs an external surplus for quite some years now. The internal imbalance is reflected in an external imbalance. The proper policy reaction however would be a wage cost policy targetted at the minimum.

Diagnosis and Therapy

Please note that the present review only gives a diagnosis, and that it is a different affair to find the proper therapy. The first is necessary step before the second can be considered.

In the course of some years I have experienced that discussing therapy is useless when people do not even understand the diagnosis. Policy makers tend to be focussed on therapy - but judge this from a wrong diagnosis. For example, in The Hague in 1992 (at a social-democratic political rally when I was no longer a member of his party) mr. Wim Kok, the Dutch Prime Minister of 2000, occasional chairman of the European Union and the social-democratic 'respected elder' to mr.-s Clinton, Blair, Schröder and Jospin, and a person who did some basic econometrics in his younger years, laughed loudly when I suggested to raise Dutch tax exemption from the then € 3 thousand to € 10 thousand. He must have thought of staggering costs, and it didn't help when I said that it need not cost anything.

A major remark about therapy is that to undo the damage of the last four decades, it is not necessary to take four new decades. Return to optimality can be much faster.

The alternative and new policy would be to abolish taxes in the tax void and to allow people to earn their own - decent and untaxed - living. This alternative policy reminds of an old rule. The Dutch economist Cohen Stuart proposed in 1889 (cited in Hofstra (1975)) to put tax exemption at the level of subsistence. To drive the point home he drafted the following analogy:

"A bridge must carry its own weight before it can carry a load."

In 2005 there is the additional argument that abolishing void taxes will not cost anything, while nations will save benefit payments due to more employment.

Note that the ideas of Cohen Stuart's 'bridge' and the tax void are not very complex in themselves. In 1991 I explained them to a 12 year old kid and he commented: "A child can understand that." Still, the EU and its score of modern governments sin against these concepts.

If unemployment is inefficient, then by definition there is a Pareto optimising solution, that will not cost anything. Most economists don't believe in cheap solutions. Much of the debate hence focusses on 'efficient unemployment', where the sad state is caused for example by globalisation, technology or 'welfare state scelerosis' (with poverty traps). But, clearly, the tax void exists, it is a cheap way out, and the

other arguments will turn out to be ghosts, which they already can be shown to be.

Note though that some period of transition may be required. Policy makers will be hesitant, advisedly, about an overhaul of the tax system. Note, then, that the tax system defines our notion of a subsidy. A wrongly levied tax, in this case the tax void, can be compensated for by a wage cost subsidy. [50] Abolishing the tax void is more sensible in the long run, but since this can only be done gradually, then some general subsidy directed at lowly productive jobs would speed up short term adjustment. The rule would be that those subsidies are reduced when tax exemption rises towards subsistence.

Stagflation resolved

More employment.... Does that not fuel inflation ? The pieces of the puzzle fall into their places when the tax void is related to the unemployment & inflation problem. The steady rise of the tax void explains the track record of unemployment and inflation. The 1950s have been characterized by relatively low taxes on low income earners, and this allowed for full employment and low inflation. From the 1960s onwards the lagging tax exemption started causing problems with unemployment. The tax policy since at least 1965 enhanced the imbalance of the internal bargaining positions of labour instead of counter-balancing it. Hence inflation was persistent, and high levels of unemployment were required to achieve price stability.

As said, governments suffer from a co-ordination problem. How governments reacted in the past depended upon the view of the day. Since the proper solution was not known, the problem did not go away. The differential indexation of tax exemption and the social minimum did not draw attention to itself. Each year adds only a slight effect which is hard to see. But over the years the void has accumulated, and with huge consequences. And the problem will remain with us in the future unless policy changes.

The co-ordination problem persists, currently. Governments currently regard minimum wage unemployment as just one type of unemployment, and not even the most important type. Current policy is based upon other explanations for unemployment, notably those of technology, globalisation and flexibility. The policy reaction based on these views is to reduce taxes for higher incomes, so that they are encouraged to work, invest and spend more, and so that labour market flexibility might be increased. However, the ineffectiveness of current policy can be explained by the fact that these views are not entirely logical. The arguments of technology, globalisation and flexibility run up against contradictions:

- Technology is a source of wealth, and it boosts the productivity of the lowly productive jobs, making the problem of poverty and unemployment less serious than it would otherwise have been.
- "Globalisation" is a scare word for "trade". Trade however is another source of wealth, and it too has been with us for ages. Rising wealth in distant countries means rising wages over there, and trade itself thus puts limits to foreign competition. Japan over the last 60 years is a prime example of this phenomenon, but every rich nation has had the same experience.
- The "flexibility" or "welfare state sclerosis" argument can only explain that the US has poverty and Europe unemployment, but it does not explain that there is a problem with low productivity jobs in the first place. The poverty trap as said does not exist.

Thus to be sure: the real policy target is low inflation, and policy makers only discuss technology, globalisation and sclerosis/flexibility in a second line of the argument. This second line is essentially a cop-out, since it does not concern the real issue - and a discussion can be very tiring if people behave like that.

At the same time, the wrong policies work counterproductively. The reduction of taxes for the higher incomes obviously is financed by a reduction of provisions for the lower incomes, aggravating the minimum wage and poverty problems.

In my analysis, the present situation bears another surprise. We diagnose current unemployment as inefficient. Be sure that you see what inefficiency means: it means that there is a solution that is beneficial to some and that does not hurt others. Having a bright idea always means a "win-win" situation or a free lunch. In the present case there is the move to full employment under price stability. The present unemployed will find jobs. The higher productivity group will have a theoretically larger risk of unemployment, but in practice this risk will be modest as in the 1950s. The real gain for the higher income earners will come from the services that will be provided by the jobs of the presently unemployed. So you do not need to reduce taxes for the higher paid, since they

already will have a real gain at current income.

This was it, in a nutshell. Now I beg your understanding. My analysis is more complex than can be stated in these few lines. Both tax policy and social policy are quite complex themselves, and this certainly holds for their interaction with inflation and unemployment. For example, you may ask why I haven't discussed income redistribution effects. Actually, this is because the alternative policy could be neutral to the income distribution. The reason for this is that the analysis focusses only on the link between wage costs and productivity. But you might want to hear more about this. Also, you might ask whether above explanation covers all possible cases of unemployment and inflation. Of course it doesn't. The analysis does help to clarify that other types of unemployment need other types of policy, such as education and so on. But you might want to hear more on that too. These are just examples of issues, and there are many more issues that need to be dealt with. Which space forbids. However, given that my model *amends* existing economic models, much of the required explaining is 'existing economics'.

This novel explanation is in the tradition of Keynes and Tinbergen while it fits in with mainstream economics. When economists check and confirm these findings, our economies are likely to enjoy more growth with full employment and low inflation.

14. The 1974 Duisenberg disaster

While the above uses a stylized example of Holland, there is a short and enlightening story about actual Dutch politics, far remote from econometric regressions. Quotes are here in my translation, Dutch readers can also read Colignatus (1994b:28).

In Dutch politics, parties have to form coalitions to be able to govern, and the Biesheuvel 1971 cabinet came about by a coalition agreement that contained the following plan:

"Increase of tax exemption (in the direction of equality exemption for married couples with one child towards the minimum wage (...))"

The explanation of this idea to parliament was (MvT 1971/72):

"(...) it doesn't require more adstruction that current exemption is too low. Its size doesn't satisfy the fundamental notion of a threshold, the exemption of taxation of part of income, that is reasonably required for financing the necessary means of existence as seen in contemporary social views."

This plan didn't succeed, the government broke down prematurely. There came about a new leftist government under leadership of Den Uyl, and his Minister of Finance was Wim Duisenberg, the president of the European Central Bank in 2000. This cabinet however rejected above concept. The 1974 argument was:

"De government (...) explained that the social minimum had been raised in the preceding years in such extent that it could be considered to provide means to pay taxes."

The latter statement is rather shocking. Subsistence is by definition a net concept, and the politicians don't stick to that definition. The statement also means that someone who falls in the tax void is forced into a benefit situation. [51]

What is alarming too, is that Duisenberg was not alarmed, didn't veto this nonsense.

After this 'Duisenberg disaster', the issue disappeared from people's mind, it got transformed into an annual debate on indexation and the topic of discussion became the level of benefits for the needy. In 2005 Holland still suffers the consequences.

Book IV

Presentations for the general public

In March / April 1996 I put two presentations for the general public in the Economics Working Papers archive at the Washington University at St. Louis. In August 1998 there was a third paper. [52] These papers are directed to a general audience, and to teachers and students. Since this current book basically addresses economists and uses quantitative methods, I doubted whether I should

include these texts here, also since there is some overlap that can be distracting. There however are two good arguments to include them with little adaptation: (i) Once a fellow economist is starting to grow convinced of the value of my analysis, then he or she will face the same problem of explaining it to others. These texts then can be of use. (ii) The historical date of these texts underlines the co-ordination problem. Even when a good summary was available, and even when the moral imperative facing Western nations was clearly formulated, our failing systems of economic policy making limped along, and caused misery upon misery for many of its citizens.

15. Unemployment solved !

A breakthrough in economic theory

Since the early 1970s Western economies have been plagued by mass unemployment and the threat of inflation. Over the years since then various economists have proposed various possible solutions, but never quite convincing ones. Now there is a novel analysis that means a breakthrough in economic theory. The present author is quite certain that the “missing link in the model” has been found. If true, this analysis offers guidelines for full employment under price stability, just as Western economies enjoyed in the 1950s. The main point is: don't tax lowly productive labour. Why ? To keep it competitive so that more productive labour will not demand inflationary pay rises. Though this new analysis is only in the stage of presentation and introduction at the scientific fora, there is no reason to withhold the present rough sketch for a general public.

It is well-recognised these years that Western economies have a problem with jobs with a low level of productivity and thus a low level of market-earned income. The United States tolerate more poverty - the working poor - while Europe sets its minimum wage much higher so that Europa has more unemployment.

This problem with low productivity jobs finds various explanations, notably those of technology, globalisation, and inflexibility - the latter ornate for “welfare state sclerosis”. Policies based on these latter explanations have been enacted for some time now. For quite some time, in fact; while little is being achieved. It is proper that we pose the question: why is it that we don't achieve much ?

Unemployment obviously has a much longer history than the current problem. Also, the Western track record on unemployment can only be understood when the record on inflation is taken into account too. Economic science has much to say on the complex relationship between inflation and unemployment. Now, we are forced to be brief here. We will concentrate on what is new and on why it is new.

We set out with the empirical evidence since 1950. This track record can be divided in meaningful decades:

- The 1950s had low unemployment and low inflation.
- The 1960s had the threat of unemployment, and governments accommodating inflation in order to actually prevent it.
- The 1970s nevertheless had mass unemployment bursting into the open, and governments accommodating high and accelerating inflation to battle it.
- The 1980s-till-now had governments come down hard on inflation, and accepting high levels of unemployment as the price for stability.

One sees a certain “trade-off” between unemployment and inflation. From the 1950s till the end of the 1980s the common view among economists and policy makers was that the unemployment in the trade-off was “general” unemployment. Nowadays we tend to link unemployment to lowly productive labour. For us it may be obvious, but compared to the earlier view it is revolutionary that the once-thought-to-be “general” unemployment now turns up as a rather specific type. To make the revolution specific: we will hold that the unemployment in the trade-off has *always* been related to the distribution of productivity across labour.

The crucial insight is that the people who can demand pay rises need not be the people who run the risk of unemployment thereof. High productivity workers run less risk of unemployment and can more easily demand pay rises, while low productivity workers run the larger risk of unemployment. High productivity workers are more versatile and are able to shift the risk of unemployment to the lower income groups. When jobs are scarce, the high productivity workers even crowd out others from the labour market.

Now obviously, when this is new, then it has not been recognised before, and then it has likely been missing in policy. And policy that was based on a wrong analysis, is likely to have been the cause of the very

problem that it wanted to solve.

Let us see how it went wrong. Regard the legal minimum wage and note that people are not allowed to work below that minimum. Note too that there *hence* will be no earnings that can be taxed in that range. We can call this range the "tax void" or "tax vacuum". However, tax statutes are defined in that range anyhow. Tax statutes in that void are actually used to define the gross minimum wage. In Europe, the high gross wage will cause unemployment and its related benefit burden. In the US, the void is reduced a bit by accepting poverty. In common economic terms: tax policy and social-economic policy are badly co-ordinated.

How this has come about is a story of a more technical nature. First note that OECD countries adjust their taxes for inflation. Tax exemption in 1996 will often be close to the inflation-adjusted real value of 1950. On the other hand, research in social psychology shows that subsistence tends to rise with the general level of income, the growth of which consists of inflation and real growth. So there is "differential indexation". In the 1950s exemption was pretty close to subsistence, so that there was no void to speak of. Since then, exemption has lagged behind the standard of living. The inflation-adjusted subsistence of 1950 may be only a third of 1996 subsistence. When tax exemption lags behind net subsistence, then there is a multiplier effect on gross subsistence, with a fast increase of the tax void.

The alternative and new policy would be to scratch taxes in that void and to allow people to earn their own - decent and untaxed - living. This alternative policy reminds of an old rule. The Dutch economist Cohen Stuart proposed in 1889 to put tax exemption at the level of subsistence. To drive the point home he drafted the following analogy: "A bridge must carry its own weight before it can carry a load." In 1996 there is the additional argument that abolishing void taxes will not cost anything, and that nations will save benefit payments due to more employment.

More employment.... Does that not fuel inflation ? The pieces of the puzzle fall into their places when the tax void is related to the unemployment & inflation problem. The steady rise of the void explains the track record of unemployment and inflation. The 1950s have been characterized by relatively low taxes on low income earners, and this allowed for full employment and low inflation. From the 1960s onwards the lagging tax exemption started causing problems with unemployment. The tax policy since at least 1965 enhanced the imbalance of the internal bargaining positions of labour instead of counter-balancing it. Hence inflation was persistent, and high levels of unemployment were required to achieve price stability.

How governments reacted depended upon the view of the day. Since the proper solution was not known, the problem did not go away. The differential indexation of tax exemption and the social minimum did not draw attention to itself. Each year adds only a slight gap which is hard to see. But over the years the gap has accumulated, and with huge consequences. And the problem will remain with us in the future unless policy changes.

Current policy is based upon other explanations. Notably those of technology, globalisation and flexibility. The ineffectiveness of current policy can be explained by the fact that these views are not entirely logical. The arguments of technology, globalisation and flexibility run up against contradictions. Technology is a source of wealth, and it boosts the productivity of the lowly productive jobs, making the problem of poverty and unemployment less serious than it would otherwise have been. "Globalisation" is a scare word for "trade". Trade however is another source of wealth, and it too has been with us for ages. Rising wealth in distant countries means rising wages over there, and trade itself thus puts limits to foreign competition. Japan over the last 40 years is a prime example of this phenomenon, but every rich nation has had the same experience. Finally the "flexibility" or "welfare state sclerosis" argument can only explain that the US has poverty and Europe unemployment, but it does not explain that there is a problem with low productivity jobs in the first place.

The present situation bears another surprise. We diagnose current unemployment as inefficient. Be sure that you see what inefficiency means: it means that there is a solution that is beneficial to some and that does not hurt others. Having a bright idea always means a "win-win" situation or a free lunch. In this case it is the move to full employment under price stability. The present unemployed will find jobs. The higher productivity group will have a theoretically larger risk of unemployment, but in practice this risk will be modest as in the 1950s. Their real gain will come from the services that will be provided by the jobs of the

present unemployed.

Policy makers will be hesitant about an overhaul of the tax system. Note, then, that the tax system defines our notion of a subsidy. A wrongly levied tax, in this case the tax void, can be compensated for by a wage cost subsidy. Abolishing the tax void is more sensible in the long run, but when this can only be done gradually, then some general subsidy directed at lowly productive jobs would speed up short term adjustment. If only those subsidies are reduced when tax exemption rises towards subsistence.

This was it, in a nutshell. Now I beg your understanding. My analysis is more complex than can be stated in these few lines. Both tax policy and social policy are quite complex themselves, and this certainly holds for their interaction with inflation and unemployment. For example, you may ask why I haven't discussed income redistribution effects. Actually, this is because the alternative policy could be neutral to the income distribution. The reason for this is that the analysis focusses only on the link between wage costs and productivity. But you might want to hear more about this. Also, you might ask whether above explanation covers all possible cases of unemployment and inflation. Of course it doesn't. The analysis does help to clarify that other types of unemployment need other types of policy, such as education and so on. But you might want to hear more on that too. These are just examples of issues, and there are many more issues that need to be dealt with. Which space forbids. However, given that my model amends existing economic models, much of the required explaining is 'common economics'.

There remains one major point. That tax exemption is low, is defended by OECD governments with the argument that it keeps marginal rates down. And the attractiveness of low marginal rates is that they spur economic activity. My finding however is that the latter claim is only true when the marginal rate has been defined properly. Thus I agree with the claim, but it must concern the proper marginal tax rate. There is a difference between the proper rate, which is dynamic, and the rate used by OECD governments, which is the static and statutory rate. Dynamic analysis shows that the proper marginal rate will be close to the average rate. This part of my analysis is important for economic growth. Having less unemployment will mean lower average taxes, and thus lower proper marginal rates, and thus more incentives for sustainable growth. For many of my fellow economists it is this part of my analysis that will come as the greatest surprise of all. However, this is not an issue that can be settled in this review, and here I definitively have to refer to my extensive analysis.

This novel explanation is in the tradition of Keynes and Tinbergen while it fits in with mainstream economics. When my fellow economist check and confirm these findings, our economies are likely to enter into a new high growth path with full employment and low inflation.

Allow me to add the personal note that I am overjoyed by these findings.

(March 1996)

16. Enable Russia to help itself

World developments in the 1990s show a worrystome parallel to the 1930s with the Great Depression. Present-day Russia reminds of the pre-war Weimar republic, where a devastated economy and weak democracy allowed Hitler to take power. Western nations in the 1990s hinder trade with Russia and the Eastern nations for fear of unemployment at home, as they did in the 1930s with Germany. If trade were stimulated instead of hindered, Russia could regain economic and political stability by itself. The moral problem is not external and does not concern whether Russia would need financial aid. The moral problem is internal, and concerns whether Western political leaders are willing to face their own errors that cause the present mass unemployment at home.

Russia is shrouded in a veil of doom. A nation once proud about its achievements, is now, as so many feel, humiliated in the face of history. A loss of empire, a collapse of economic security, some coup attempts in both Kremlin and Duma, a rising reign of violence by a mafia in the main cities and by full-blown fighting at the geographical fringes, and a political arena that smells more of fear than of confidence. Like the Weimar republic in pre-war Germany, Russia has been subjected to the rules of chaos, and yet again the odds are risky - and risky for the world at large.

Something needs to be done. Something smart, something humane, something effective and efficient, and something courageous. Therefor,

something which is not likely to happen quickly. However, there is one single possibility that is very much worth of our attention. It is something what we actually could do. And what - given the risks of this moment - we should do

It is *trade* that will help Russia and the Eastern nations to recapture economic security and thereby regain political stability. And, since it is our fear of unemployment that motivates us to block that trade, Western nations should tackle unemployment at home directly.

Parallel

Our comparison of present-day Russia with pre-war Germany is no coincidence. World developments in the 1990s show a worrystate parallel to the 1930s. The 1930s suffered from the Great Depression. In the 1990s the world is again plagued by mass unemployment. Again there is a major region that is economically devastated and that desperately needs access to the world market, and yet again the other wealthier nations hinder that entry, while concentrating shortsightedly on their own problems at home, and neglecting the consequences of neglect. The West might want to reduce the risk of a Russian disaster, but not at the cost of jobs at home. Trade barriers are there to keep cheap Eastern products from "flooding" its home market. Europe throws in huge subsidies for its agricultural exports. Western tariffs or quality requirements are pitted against Eastern exchange rates, in a war on trade whatever its consequences on economic and political stability.

The West is digging in and seems to repress the recognition that history is repeating itself. Again the world finds itself in a deadlock, and yet again chaos feeds on it.

But we should remember the trade war of the 1930s and the rise to power of Adolf Hitler ! In the 1930s the same mechanism of trade, unemployment and political instability applied. In this period it was Germany that was the weak nation. The Versailles Treaty of 1919 that ended World War I put Germany under a huge reparations bill. The world forgot that the war had been started by an autocratic Kaiser and that Germany now had a new, fledgling democracy. To pay that bill, this weak democracy was obliged to cut imports and to spur exports. The reparations bill worked like a foreign tariff that took away funds that could have been invested otherwise. By the end of the 1920s Germany defaulted on its international debt - and thereby indirectly caused the Wall Street Crash of 1929. Thereafter, all nations scrambled for the lifeboats. Nations feared for their home markets and employment, and defended themselves by exchange rates and tariffs. In their fear they made things only worse. The German economy collapsed, and on the teutonic waves of resentment its weak democracy toppled and Hitler took power.

Let us now compare: Is the Russian democracy anything other than new and fledgling ? Have its generals not tried to seize power ? Have its tanks not roared against its very own Parliament building ? Has its economy not dropped by a third? Or conversely, have all its nuclear weapons and uranium stores been safely secured ? Have the Western nations done their utmost in opening their markets ?

Risk not chance

Of course, there is a glimmer of hope. The Russian capacity for suffering is impressive. Few nations could sustain this suffering and national disgrace without lapsing into resentment, cruelty and violence on a much larger scale than we actually see in Russia. The West has provided some funds and done something more. The world is not at war and may not be at war for some time. The probability that things go right is large, and there is only a small chance that things go wrong.

But please consider: If the only glimmer of hope is that *the world is not at war*, then the situation is quite depressing. Hope is not the point, and neither likelihood nor expectation. The point is risk. Risk comes from the arithmetic of loss multiplied by chance. Thus: risk = loss * chance. If things go wrong in Russia then the consequences will be huge, and a small chance *times* a huge loss gives *a risk too large*.

Internal not external

The West should open its eyes and see the economic logic. Eastern nations need to take part in the international economy and thus need modern Western equipment. To buy the latter goods they need the proper currency. Either someone *gives* them that foreign currency, the dollars, yen or marks, or they have to *earn* it themselves by exporting. To

simply give them credit, on the scale required, is absurd. Therefore it is access to Western markets that is essential for those nations and for political stability. Indeed, if they had access, and if the flow of trade were to start, then the World Bank and IMF could extend credits and thereby fuel the process towards stability.

At the same time, economic science tells us that it is not trade that has caused present Western unemployment. Marking trade down as the culprit, and using trade barriers to solve a situation that trade has not caused, only makes things worse.

The moral problem is internal and not external. The cause of present-day unemployment in Western economies is internal management and not external trade. There is a failure within the internal co-ordination of macro-economic policy, a failure by our very own governments. Western nations could tackle their unemployment problem at home - if only our political leaders were willing to take a hard look at their own internal policies.

The historic parallel also concerns the current lack of attention for the internal question. Policy makers that concentrate on an external trade war neglect the internal opportunities. There is the following sobering story about the economist John Maynard Keynes. From the early 1930s Keynes advanced his solutions to the Great Depression, and this culminated in his 1936 book that changed macro-economics. Policymakers could have reacted already in the early 1930s, ... but only did so after World War II had already begun.

Conclusion

We might ask: Do we care about the peoples of Russia and the Eastern nations? And should we act with economic sense? However, those questions are imprecise. The real question is whether our leaders care so much that they will reschedule their busy agenda's and really look into a problem that they cause themselves.

There is every reason to believe that political leaders are quite deaf on this. So pray that there will not be a new world war. So shout to your political leaders: Stop that trade war!

Do something about external trade tariffs and internal unemployment. Enable Russia to help itself.

(March 1996)

17. Will the West repeat Versailles?

Asia and the Eastern European nations are in a state of economic turmoil. An important element for improvement is that Western nations open their markets to more trade. This is in fact what the West could have done after the fall of the Berlin Wall. But petty shortsightedness of the governing elites in the West blocks this kind of solution. The situation reminds one of the Versailles peace conference after World War I that fostered a lot of resentment and helped cause World War II. The basic conclusion is that sound economic advice is not listened to. The best advice on how to steer out of the current world macro-economic mess is that every parliament installs a committee to enquire into the process of economic advice. They could study the books by Paul Krugman, and possibly also my analysis on unemployment and my suggestion for an Economic Supreme Court.

Western nations show an inadequate reaction towards the Eastern nations since the fall of the Berlin Wall, and this inadequate reaction is repeated with respect to the current economic throes of Asia. The West displays disinterest in the hardship and actual physical pain inflicted on millions of our fellow human beings, and a neglect of the long run effects of this egotistic behaviour. Part of this inadequate reaction however is also caused by wrong applications of economic theory, so that true compassion that is out there doesn't get the chance to show itself. One lesson is that Western nations are advised to restructure their policy making process so that governments are better served with proper economic advice.

The negligent way that the Western nations treat the other nations reminds one of the Versailles peace conference after World War I. Historians agree about the sad Western attitude at the Versailles conference. The Western Allies humiliated Germany and subjected that country to decennia of economic hardship, purposely crippling its economy. These events caused a huge resentment in Germany, and this fostered the rise of Adolf Hitler. Also, Germany's defaults on its financial obligations were a major cause for the 1929 Crash and the subsequent Great Depression. This episode is another example that two wrongs don't

necessarily make a right, and it also shows how wrongs can backlash at the wrong-do-er.

The lesson of Versailles is that opponents can often best be allowed to grow into a relationship of companionship and economic competition and co-operation for the betterment of all. Rather than subdue them or take advantage of temporary weaknesses, they could be helped so that they could help us. This lesson should now be applied to the current situations of Asia and Russia.

It is useful to recall that Western nations were not without proper advice at the time of Versailles. They were warned, and by nobody less than J.M. Keynes. As Paul Krugman recently stated about Keynes: "After that war he became famous as the author of *The Economic Consequences of the Peace*, an eloquent condemnation of the vindictive terms imposed on the defeated Germans; his concern was vindicated by the rise of Adolf Hitler, and the memory of his warnings helped convince a victorious America to aid, not punish, its prostrate enemies after World War II."

Indeed, after World War II the Allies helped Germany and Japan to reorganise their countries and to prosper again. While the average citizen may be deluded by sentiments of nationalism, religion or ideology, it normally is a governing elite that abuses those sentiments for purposes of its own grandeur - and once a decent government is in place, there often appears little reason to blame that average citizen for the errors of its country. In the same way post-communist Russia deserves our sympathy, and the same holds for Asia with its different history.

But why has the West forgotten this valuable lesson? Why do Western governments neglect Nobel Prize winner Jan Tinbergen's work on the Optimal Economic Order, and why do we again have a show of petty egotism and shortsightedness?

The reason is that the West is not immune to the same 'governing elite' processes that can be at the detriment of common welfare. The governing elites and bureaucracies in the West have agenda's of their own, and though they are restrained by democratic rules, these rules are not as strong as they could be. Our systems of checks and balances are a product of history, and not necessarily of the quality required. Politicians and bureaucrats often still can lie and get away with it. The United States e.g. had David Stockman on the budget deficit, and it took too long before that matter was settled. In general, sound economic advice still is obstructed by political processes, and policies and the electorate itself then grow misguided in their choices.

To better understand the failure of Western democracies on the issue of economic advice, one can best start by reading Paul Krugman's books "The Age of Diminished Expectations" (1990), "Peddling prosperity" (1994), "Pop Internationalism" (1996), and "The accidental theorist" (1997). For example, when Krugman discusses US majority leader Arme's book "The Freedom Revolution", he states: "Arme is no fool. He cannot be unaware that he is fudging his numbers. Possibly he regards a small fib as justifiable in the service of a higher truth. Or possibly he has managed to achieve a state of doublethink, in which the distinction between what is politically convenient to believe and the objective facts no longer exists [sic]. The end result is the same: His book is an effort to obscure the stark realities (...)" (1997:60). Similarly, one can read in the American Economic Review that the US Council of Economic Advisers is rather proud of its achievements in the last decades, but we should be aware that this council is a bureaucratic body, and it hasn't the independent position that could have protected the US economy from the events and errors as are related by Krugman in his "Peddling prosperity" saga or shown by the record of mass unemployment.

Let us now regard what the West could have done with regards to Russia after the fall of the Berlin Wall and the first free elections there - and what could be done now also with respect to Asia. I take my own 1996 paper "Enable Russia to help itself", and quote from its summary: "Western nations in the 1990s hinder trade with Russia and the Eastern nations for fear of unemployment at home, as they did in the 1930s with Germany. If trade were stimulated instead of hindered, Russia could regain economic and political stability by itself. The moral problem is not external and does not concern whether Russia would need financial aid. The moral problem is internal, and concerns whether Western political leaders are willing to face their own errors that cause the present mass unemployment at home."

Clearly, with this being the state of affairs, one can imagine the strength of the forces that prevent a proper discussion of these issues.

Western companies embrace tariff barriers to cheap imports - and raise their own prices. Bureaucrats embrace barriers since these give a sense of control, and these also justify the very existence of this bureaucracy. Labour unions will fight unemployment at home with whatever misguided argument it takes. Governments embrace economic tales about 'globalisation' and 'competition from cheap labour countries' since these distract attention from home grown errors, and these governments neglect economists who tell them that 'globalisation' and 'competition from cheap labour countries' are rather like fairy tales indeed. Krugman again uses the term 'globaloney' - and have you heard your President or Prime Minister adopting that critical attitude too ?

The best economic advice for the current situation is as follows - and I urge upon my fellow economists to adopt and spread that advice too: *Every parliament could install a committee that will enquire into the process of economic advice.* This committee could study Krugman's books and my suggestions for a solution of mass unemployment and for an Economic Supreme Court amendment to the national constitution(s). Nothing less will do. Note, by the way, that when countries start installing these committees, the markets will be quick to anticipate the directions of their conclusions, and economic recovery would already set in.

We all know Lincoln's words: "You can fool all of the people some of the time, and you can fool some of the people all of the time, but you cannot fool all of the people all of the time." Let us act upon it, or show Lincoln wrong. (August 1998)

Notes in 1999: (1) A 1999 UNDP report describes the Eastern European situation as disastrous, and calls for a quick joining up to the EU (De Volkskrant October 16 1999). It is courageous that an international body speaks up like this - and it indicates the seriousness of the situation. (2) The journalist Peter Michielsen in NRC-Handelsblad October 30 1999 rightly calls attention to the original borders between the empires of Rome and Byzantium. The Eastern European countries that are doing relatively well belong to the Roman area, the others to Byzantium. He mentions that this cultural distinction has also been noted by Andreas Oplatka of the Neue Zürcher Zeitung 1994, who again refers to George Kennan in 1945. I was a bit surprised by this, hadn't thought about it in this way. (3) These points however nicely fit what I have been arguing for ten years now. Enabling people to help themselves starts with taking account of the local conditions; and overall the barriers to trade should go.

Book V

Methodology: Definition & Reality

18. How to check ?

At the Dutch Central Planning Bureau, I helped making the Athena model (CPB (1990)) with its 7000 variables. I had this model at my computer and could let it do tricks like an obedient dog. But a proposal to an exercise effectively like the above was rejected by the directorate, and nowadays I am no longer in the position to make such proposals. The desktop computer that I have now, in 2004, might have more power than the 1990 mainframe, but I don't have the data, the programs, and the possibility of discussion with colleagues. I have Word for Windows, *Mathematica*, some crucial books, an occasional visit to the Dutch Royal Library, and the internet (at low speed). Moreover, I have to make a living, in a different kind of job, and my time constraints thus are severe. This explains why I am forced to a logical argument - and this explains again why I emphasise logic anyhow.

Thus, crucially: it is up to the fellow economists to check my findings. They / you should actually do this anyhow, since a critical perspective always is best. For example: What are the data on the minimum wages in the other OECD countries ? OK, the OECD internet site shows that 1997 statutory minimum wage is 39% of median wages incl. overtime in the USA, 60% in France, 30% in Japan, etcetera, quite sizable [53] - but what about the tax void, the development, the indexation, the discouraged workers below the minimum, etcetera ? [54] What about the shifts of the Phillipscurves in this light ? What about the effects of the dynamic marginal rate ? How are these topics in *all* nations ? And what would happen, if all nations gain confidence about growth policies again, and they fire up each other and move all to a new higher growth path ? Clearly, the research agenda is huge.

The situation since 1989-1991 has been a bit like this: Me stating that

unemployment has been solved (analytically) and inviting the fellow colleagues to check it - and nothing further happening. This book should make a difference in that I collect the various articles that I have been able to write since then. When others see the whole route then they will also better see the crucial junction where to take the other turn.

This may also concern the novel contribution to methodology below. [55]

19. Dealing economically with concepts

Maximising information power

Methodology may be seen as '*economics applied to science*'. The *methodology of economics* is the fixed point in that construct - even economic methodology in the traditional form as presented by Tintner (1968).

The 'basic economic problem in science' is - in my perception or definition - that some set of concepts can better deal with the data than another set. New ideas are like manna from the sky, but the manna must be collected, stored, compared to the older findings, etcetera, and an optimum must be found, using scarce resources over alternative ends. This 'basic economic problem in science' thus is quite different from the 'mundane (non-basic) economics' that, say, 5% more truth can be traded against 10% more effort and cost.

The mind has the economic problem of dealing effectively and efficiently with (i) old concepts, (ii) new information and (iii) the construction of new concepts. The name of the game is to have concepts or definitions fit reality as usefully as possible. The definitions must be chosen as strong as possible, so that uncertainty can be shifted to observation (and the problems with observation).

The human mind seems to be occupied with reduction of cognitive dissonance - or, at least, that is a fruitful way to look at that mind. Here I follow Aronson (1992a&b), who provides a definition of cognitive dissonance, and data and tests that lend empirical support for it. It appears that a commonly used method of reduction of cognitive dissonance consists of the rejection of new information to the advantage of older views. Frequently the messenger is blamed for the bad message, and even, after the messenger has been punished, the bad news is neglected since it came from an unreliable source - namely a person who had to be punished (while it is forgotten that, if the news is considered irrelevant, then there was no base for punishment). Man is a rather prejudiced creature, and thus not so effective and efficient at information handling - but man has to handle new information.

cg

Barrow (1998:4) [56] provides us with a useful quote:

"This unifying inclination of ours is a by-product of an important aspect of our intelligence. Indeed, it is one of the defining characteristics of our level of self-reflective intelligence. It allows us to organize knowledge into categories: to know vast numbers of thing by knowing rules and laws which apply in an infinite number of circumstances. We do not need to remember what the sum of every possible pair of numbers is: we need know only the principle of addition. The ability to seek and find common factors behind superficially dissimilar things is a prerequisite for memory and for learning from experience (rather than merely by experience). (...)

All human experience is associated with some form of editing of the full account of reality ('we cannot bear too much reality'). Our senses prune the amount of information on offer. Our eyes are sensitive to a very narrow range of frequencies of light, our ears to a particular domain of sound levels and frequencies. If we gathered every last quantum of information about the world that impinged upon our senses they would be overwhelmed. Scarce genetic resources would be lopsidedly concentrated in information-gatherers at the expense of organs which could exploit a smaller quantity of information in order to escape from predators or to prey on sources of food. Complete environmental information would be like having a one-to-one scale map. For a map to be useful it must encapsulate and summarize the most important aspects of the terrain: it must compress information into abbreviated forms. Brains must be able to perform these abbreviations. This also requires an environment that is simple enough and displays enough order, to make this encapsulation possible over some dimensions of time and space.

Our minds do not merely gather information; they edit it and seek particular types of correlation. They have become efficient at extracting patterns in collections of information. When a pattern is recognized it

enables the whole picture to be replaced by a briefer summary form which can be retrieved when required. These inclinations are helpful to us and expand our mental powers. We can retrieve the partial picture at other times and in different circumstances, imagine variations to it, extrapolate it, or just forget it. Often, great scientific achievements will be examples of one extraordinary individual's ability to reduce a complex mass of information to a single pattern. Nor does this inclination to abbreviate stop at the door of the laboratory. Beyond the scientific realm we might understand our penchant for religious and mystical explanations of experience as another application of this faculty for editing reality down to a few single principles which make it seem under control. All this gives rise to dichotomies. Our greatest scientific achievements spring from the most insightful and elegant reductions of the superficial complexities of Nature to reveal their underlying simplicities, while our greatest blunders often arise from the oversimplification of aspects of reality that subsequently prove to be far more complex than we realized."

cg

This human property should be used in economics to explain actual events. Colignatus (1996d) for example applies Aronson's findings in social psychology to economics, trying to indicate the actual 'forces'. Another application is the very analysis in this book, for example where we stated earlier:

"If the government on the one hand would desire to use the results of scientific advice for its budget process, and on the other hand would not opt for an Economic Supreme Court, then its *definitions* would be logically inconsistent, and it would thereby tend to create a cause for dishonesty and improper manoeuvring and thereby corrupt its processes." (above)

While the above relies on structural models, the property can also be modeled in the reduced form. Chapter 40 uses information indicator $I \in \{0, 1\}$.

Another application is to the methodology of science. Methodology should harness this human property, and clarify when it is useful and when it is misleading.

cg

Science aspires at a more unbiased approach. This unbiased approach also means the deliberate creation of cognitive dissonance, by creating new concepts and by looking hard at the evidence till it doesn't go away anymore.

The evolution of knowledge can be described in terms of an ever increasing power in the concepts used.

The introduction of a new definition is not simple. The questions always are: does the definition cover the facts as we know them, does the definition not introduce hidden aspects that cause confusion and prevent advancement? If a new definition wins out, it is, apparently, only so because it is believed to have passed the test. Though, we should be critical of this assumption. Only if the environment is 'critical', then we might presume a 'survival of the fittest' for concepts. (And all this is reminiscent of Dawkins's 'memes'.)

Definitions can be devious in quite vulgar ways. In the English economics literature, 'perfect competition' is defined as the situation when no agent can affect the price, i.e. all agents are price takers. The Dutch word for this case is 'full competition'. The English definition forces English economists to use the word 'imperfection' for all other cases. Even quite reasonable cases, in the normal state of human life, when agents have market power but balance at some social optimum, would be 'imperfect'. Also a natural monopoly would be an imperfection - even if one could not conceive the situation differently since the monopoly is a natural one. It would be better if the English economists would adopt the Dutch definition, so that the words 'perfect' and 'imperfect' could be used in their proper sense depending upon circumstance. This is just a vulgar example of how definitions can lead one astray.

The competition of alternative concepts can be quite sophisticated however. Let us illustrate this with three examples. The most illuminating example may well be Pythagoras's theorem and its relation to the circle. This problem concerns mathematics, so that the discussion is less taxed by semantics and empirical matters - though there is of course the theory about empirical space. The second example of 'falsification' is surely in the realm of empirics. The third example concerns the distinction between determinism and volition.

Regard a triangle with perpendicular sides a and b and hypotenuse c . There are two points of view:

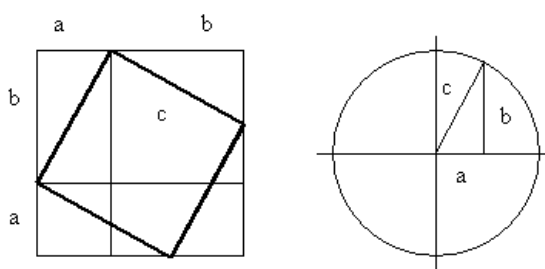
1. Pythagoras proved [57] that the square of the hypotenuse equals the sum of squares of the perpendicular sides, i.e. that $a^2 + b^2 = c^2$
2. For the circle, it is taken as the defining quality of the circle, and thus accepted without proof, that the points are at equal distances from the origin. In other words, a circle with radius c is defined as the collection of points (a, b) at a distance of c from the center. Thus $a^2 + b^2 = c^2$ by definition.

The two points of view are presented in Figure 16. The definition of the circle can be taken for granted, since it is just a definition. On the other hand, it will be very useful to discuss the proof of the Pythagoras theorem, since then we see the *need* for a proof.

Let us take the square with sides $z = a + b$ and surface $z * z = z^2 = (a + b)^2$. Within this square we can see four triangles with straight sides a and b and hypotenuse c , as has been done in Figure 16 in the square on the left.

In the square, another tilted square has been drawn, with sides c and thus a surface of c^2 . There are four surrounding triangles, each triangle has a surface of $\frac{1}{2} a*b$. The surface of the large square is equal to the surface of the tilted square and the four triangles.

Figure 16: Pythagoras and the circle



Thus:

- From the big square itself: $z^2 = (a + b)^2$
- From the tilted square and the triangles: $z^2 = c^2 + 4 ab/2$.

Elimination of z then gives $a^2 + b^2 = c^2$.

This proof has been taken from DeLong (1971), and he remarks that Pythagoras proved it differently.

How do we explain that one and the same equation can have two interpretations that are so widely different, one with the need for complicated proof and the other with direct acceptance by definition ?

There may be other explanations, but I think the following will do fine. Note that the definition of the circle relies on the notion of 'distance'. There are two points of view again, so that point 2 above actually splits in two parts:

- 2A) Basically the (Euclidian) distance between two points can be measured by a straight line section. That is rather simple, and makes for a readily acceptable definition of a circle.
- 2B) However, in a system of co-ordinates, that distance can be reinterpreted in a representation in terms of the co-ordinates. There are two possibilities again. Either the distance can be defined as simply the formula $dist\{x, y, \{a, b\}\} \equiv \sqrt{((x - a)^2 + (y - b)^2)}$ with $\{x, y\}$ the origin - above $\{x, y\} = \{0, 0\}$ - or it can be defined geometrically as the hypotenuse of the differences of the co-ordinates. If either definition is accepted, then one can use Pythagoras' theorem to derive the other.

The essential difference between (2A) and (2B) is that (2A) is elementary and poor in concepts and results, while (2B) is complexer and rich in concepts and results. Viewpoint (2A) only allows us to use measuring rods between arbitrary points and little else. We are allowed to sweep the rod around the center, and thereby draw the circle, but then it somehow stops. Viewpoint (2B) allows us to do much more. A line between two points is interpreted in terms of a system of co-ordinates, and that opens the scope for new results.

We find that the opposition of (1) against (2) is rather messy, and (2) actually hides two suppositions. The ease of (2) depends directly upon the ease of (2A), while (1) actually compares with (2B) that is complexer. The phrase "In other words" in (2) above thus was misleading, and actually represents the introduction of another assumption.

With this clarified, we also note that (2) is stronger than (1), and that it was possible to seduce the human mind to accept (2) rather easily. There

has been a progression in concepts, resulting in stronger definitions.

Note that behind all this there is a notion of empirical space. In (1) there is a hidden assumption of a flat space. In (2B) the assumption is made explicit, and then open to amendments (curved surfaces, or abstract spaces). The movement of (1) to (2) thus is, partly, (a) the advancement in concepts by means of the definition of distance (and the circle as a collection of equal distance points), (b) the introduction of the separate step of observation - with the difficulties: when does the definition apply to reality, or if there is some reality, how do I select the proper definition ?

cg

The point that is relevant for this book then is: that the definition is so good, that it in practice substitutes for many everyday empirical problems. A criterion for a good definition is: that it can be such a substitute.

When a definition is a close substitute for reality, then it may percolate into common culture with more authority. For example: every citizen can establish the existence of a tax void and Pareto suboptimal unemployment purely from the logic of the level of gross minimum wages and the official tax statutes - and we don't need big computers or official bureaus to do some econometrics and then tell us.

Admittedly, there is danger in *seductive and seemingly right but wrong* definitions. If 'child' is defined as 'irresponsible young human', then we may be tempted to treat children as such and forget to expect the responsibility that they can handle. But the existence of this danger should not make us close our eyes to the advantages of good definitions.

cg

A side issue concerns our concept of 'space'. Let us first consider an example of cultural relativism. It appears that different human cultures can have different approaches to one's orientation in space, and that these approaches are wired into the languages used. [58] Taking a point of reference can be done in three ways: (1) Relative: taking one-self ("the tree is to the left of the house" - seen by me); (2) Absolute: taking the sun ("the tree is to the west of the house"); (3) Intrinsic: taking one of the objects ("the tree is to the back of the house"). If someone is asked to copy a situation in front of him towards a place in the back of him, then there will be a different 'copy' depending upon one's language/culture. If you have a cup of coffee and a pencil in front of you, pick them up, turn yourself around, and recreate the scene, then a Westerner will use relative positions, while an Australian Aboriginal will use absolute positions (and turn the relative positions around). The question now is: while this only concerns the point of reference, can we imagine something similar that affects our concept of space itself ?

I take the position that the human mind apparently is able to conceptualise Euclidean space - and that this actually *defines* our concept of space. If we take a non-Euclidean geometry - such as a globe - then this still can be imagined to exist within Euclidean space. Pythagoras's theorem is invalid for triangles drawn on a globe, but to hold that space is a globe would be erroneous - since our definition of space would be Euclidean.

One of the questions often posed is whether the universe - interstellar space - is Euclidean or not. This is a badly posed question. If we define space as Euclidean, then it is another question whether a ray of light follows a straight line or is deflected by gravity.

Barrow (1998:p42-44) provides a troubling quote: [59]

"The most important consequence of the success of Euclidean geometry was that it was believed to describe how the world was. It was neither an approximation nor a human construct. It was part of the absolute truth about things. (...) This confidence was suddenly undermined. Mathematicians discovered that Euclid's geometry of flat surfaces was not the one and only logically consistent geometry. (...) None had the status of absolute truth. Each was appropriate for describing measurements on a different type of surface, which may or may not exist in reality. With this, the philosophical status of Euclidean geometry was undermined. It could no longer be exhibited as an example of our grasp of absolute truth. (...) These discoveries revealed the difference between mathematics and science."

This quote is troubling for the following reasons:

1. If we define 'space' as Euclidean, then it is an absolute truth. This definition seems to maximise our information power. Other surfaces can be imagined within that space.

2. One might think of 'empirical space' as something that must be measured. The idea is: 'If it cannot be measured, then it is not relevant.' OK, this seems fine in principle. But if a physicist would use 'light' as a measuring rod, then this is asking for problems. Namely, Euclidean geometry already provides us with our system of measurement. Defining 'empirical space' differently would conflict with our original definitional grasp of space. Better is: to stick to the definition, and regard measurements that deviate - e.g. from gravitational deflection - as the physical properties of the objects and measurement tools involved.
3. That there is a difference between mathematics and science does not disqualify the notion of absolute truth. A true deductive sequence 'Assumption \Rightarrow Conclusion' has absolute truth. And it should be realised that scientific theories are mathematical (with the scientist working on an assumption).
4. It is possible to translate the Dutch 'lijn' as 'point', and 'punt' as 'line' (thus conversely) and still find a consistent model for Euclid's axioms. But this is a mathematical exercise, and it does not necessarily have to do with 'space'.

So it seems that Barrow and I agree for 99%, but still, the 1% difference features big in some dimension. Note that the discussion here concerns more a side issue, but it remains useful to indicate the deeper aspects of Pythagoras's theorem.

Falsification

The 'principle of falsification' is that hypotheses are only scientific if they are formulated such that they are vulnerable to empirical testing, and might be falsified. It has been formulated by Popper, see Keuzenkamp (1994).

The principle has two disadvantages: (1) purely logical, (2) stochastically.

(ad 1) Take logic first.

Counterargument 1. Regard the statement *All ravens are black*. This statement will be false when one finds a non-black, say white, raven. So the statement would be an acceptable scientific hypothesis, since falsification is possible in principle. But, as the falsificationist would hold, it would remain a hypothesis, and we should be aware of the fact that is only a hypothesis, until it had been checked for all ravens (Tintner (1968:12)). This falsificationist view however is problematic, since most of us will sense that there is truth in *All ravens are black*, for example by our definition of a raven.

Counterargument 2. In the extreme, all scientific knowledge would consist of instances of falsification. It has been falsified that the Earth is flat, that atoms cannot be broken, that ... But the principle itself, i.e. that 'all scientific knowledge would consist of instances of falsification', is a definition and is not open to falsification.

While falsification may be a successful research strategy in many cases, it does not seem to be a fully satisfactory way of organising science, at least from these two points of logic.

(ad 2) Take stochastics next. Let us regard the typical modelling situation:

The model:	$y = X\beta + \varepsilon$
Estimation:	$y = Xb + e$
Observation $X[+1]$	$y_{est}[+1] = X[+1]b +$
forecasts:	$\text{Exp}[e[+1]]$
Final observation:	$y[+1]$

The question now is whether this new observation can falsify the hypothesis of the empirical estimate. This question is not as simple as the naive falsificationist first had in mind. The principle of falsification is formulated as for deterministic reality, while many empirical models are stochastic. In stochastics, there may be deviations, and sometimes large ones. There are problems of measurement in y and X , the choice of the functional relationship, missing variables, and the choice of the stochastic specification itself.

One useful empirical answer is optimal control, with the example of a rocket launched to the moon, where there is continuous adjustment to observed error ('falsification'). This control only works well when there is a proper definition of the loss function. The issue of the loss function is a crucial one, but this is not falsificationism.

Logic and stochastics cause me to take the following position.

There is a difference between all_1 (universal) and all_2 (generally, usually, normally). The statement *All ravens are black* can be seen as:

1. a definition. It then holds universally. Empirical truth then is conditioned to the logical tautology of the definition that we have chosen. If we find a white bird that looks like a raven, it cannot be a raven. (But we think that this definition covers reality, for example since we have some ideas about genetics and evolution.)
2. an empirical statement - grounded in a stochastic model. It is shorthand for *All ravenlike birds tend to be rather black* or whatever the professional might deem correct. The meaning of such statements is more subject to context than in the case of well-groomed definitions.

The human mind thus faces the choice: To adopt a definition and run the risk that this does not fit reality so well, or to adopt a statement on averages and work out more details of the empirical loss function. Decisions on such statements thus are sensitive to the loss function, but the second category requires more detail.

This of course does not solve everything. The distinction of these two dimensions or perspectives is not like solving all problems in their domains. Also a definition like *All ravens are black by definition* does not answer the question whether a particular object is a raven or is black. Is a size of 10 kilometers acceptable? Did we look in daytime or at night? Must it be alive, and then, what is life? So the distinction between definitions and empirical statements is useful, but it does not solve all problems. The point is not quite that one can always adjust definitions, but rather that a definition is not reality by itself. (Though it can get close.)

At one point in history, scientists were willing to accept the periodic system of elements to catalogue the wide variety of materials around us. There was apparently little loss involved in accepting these definitions, or Lavoisier's periodic table was more gainful than other catalogs. The definitions did not change the materials, but facilitated more efficient research. At one point in history, see Mirowski (1989), economists were willing to analyse human behaviour in terms of utility maximisation. The approach is an empty box, since any behaviour can be described as such. For example satisficing behaviour can be represented as minimising the distance from satisfaction. Also in 'evolutionary economics' the utility maximisation model can be applied though these researchers are critical of this approach. (While, curiously, Charles Darwin was inspired, amongst others, by Adam Smith.) The new approach for laboratory experiments makes us even more critical about the rationality hypothesis. Utility maximisation however helps organising one's thoughts, helps professional discussion, facilitates modelling and empirical estimation, and is generally considered an advance above less explicit approaches.

As with the Pythagoras example, but now empirically, there is a switch from just empirical knowledge to a set of definitions, when the loss function allows it.

Kuhn (1962) describes major changes as 'paradigm switches' (though someone noted that he used that word in perhaps 40 ways). I rather draw attention to the change from empirical knowledge to definition. This change need not be a paradigm switch. Paradigm switches may be the most intriguing or flashy examples of the introduction of new definitions, but the change from empirical knowledge to definition does also occur in 'normal science'.

Determinism and free will

Holland around 1600 had the theological argument between Gomarus who defended predestination and Arminius who defended a measure of volition. This discussion had started before them, didn't end with them, and continues till this day, also in these pages.

The 20th century gave a novel twist to the argument, namely quantum mechanics. Instead of the folly of the gods, there now is a randomizer with a scientific garb. If objects, and the molecules in our brains, have random aspects, then this would be neither determinism nor volition. Quantum mechanics normally is applied at the micro level of particles, and there is the suggestion that larger aggregations of masses still would behave in the Newton-Einstein fashion. Schrödinger however gave an example - his cat - how quantum mechanics could also extend into this macro world. So the challenge to the debate on predestination is real. [60]

The quantum model is stochastic of itself. This differs from the randomness caused by simple measurement errors - the randomness commonly used in economics. However, economics has some purely stochastic models of itself too. There is for example the Erlang queueing model. Consider a postoffice with clients arriving and being served.

Interarrival and service times can be modeled with exponential distributions, and this allows us to determine the average length of the queue, the average waiting time, the average utilisation rate of the service window, and such. If the situation gets more complicated, then research economists use computer simulation models to find the best way of operation. This example shows that economics already is familiar with a model that is stochastic in itself. Note that there are some ways to re-introduce a degree of determinism - as your barbershop may require you to make an appointment. The basic observation that we make here is that the stochastic approach is basically a modeling method, and there is no implication that arrival and service are intrinsically random.

The discussion above introduces the various components, and the question now becomes what to make of it all. The following gives my solution.

First of all, science *by definition* avoids the 'deus ex machina' assumption. An understanding of reality is looked for without reference to a god. So our discussion is not burdened with the associations of eternal damnation (and predestination to this).

Secondly, science *by definition* aspires at a deterministic understanding. Scientists may adopt a stochastic approach with only a limited degree of accuracy, but the target remains a 100% accuracy - which is determinism. Hence, by definition, scientists have a deterministic predisposition. [61] [62]

Thirdly, the idea of a 'free will' is a moral category, differing from physics. Admittedly, the scientific approach would presuppose that our moral considerations depend on our brain, and the movements of electrons and molecules that could be caught in a deterministic model - but the proper conclusion is that we don't have that model yet. The existence of time, and in particular the uncertain future, is a precondition for morality. An 'existence proof for God' would be that in the limit of time, prediction accuracy rises to 100% and all moral beings are going to make the proper moral choices. [63] But we don't know for sure that those choices will be really moral - and anyway it is hard to see how this could affect us. For example, we may predict, as social scientists, that when economic conditions worsen, that politicians then may be more inclined to morally dubious choices. But we need the passing of time to determine whether this prediction materialises - and, as human beings, we would still want to form a moral opinion and discuss the moral aspects. The conceptual gap between 'ought' and 'is' remains. Eventually there might be a practical (non-conceptual) bridge, but for those same practical reasons it isn't there yet.

Though science does not refer to gods, we can use a god anyway for clarification. Janus, the Roman god and name-giver to the month of January, had two faces, one to the past and one to the future. Figure 17 uses the Janus head as an analogy to locate the various concepts.

Figure 17: Janus head analogy



Note: This only displays the three opposing concepts in one picture, without implying that all concepts to the left are equal or that all concepts to the right are equal.

The Janus head analogy works only up to some degree. We don't know all that happened in the past, we can use probability statements for the past too, and thus we cannot replace 'past' with 'certainty'. Similarly, as said, science has a deterministic predisposition, so the future basically is predetermined from a scientific point of view. Yet the head analogy is useful, since it focusses our attention to these various subtleties.

Thus, clearly, the Arminius and Gomarus debate can be seen as non-sensical if they got the two categories of science and morality confused. Even though we can have a deterministic predisposition, we still can have moral volition (and be judged by jurors on making wrong choices). Their debate would be proper in so far as Gomarus would take predestination in a moral sense - but then the debate is not relevant for us.

Thus, clearly, quantum mechanics drops out as a fundamental category. It only remains as a research strategy in the face of apparent difficulties, but it still is on the road to 100% accuracy.

Admittedly, quantum mechanics itself seems to pose that nature would have random properties at the micro particle level. Some even argue that this would be the basic example of *true probability* - while all other 'examples of probability' (like throwing dice) are basically deterministic (and we only use probability techniques to make up for our lack of knowledge or laziness in measurement). In particular, Richard Gill, professor in mathematical statistics at Utrecht university, gives this argument at a roundtable discussion:

"We should be collectively ashamed not to know anything about quantum mechanics. I would like to see all introductory texts in probability theory going a little into the physical (quantum) theory behind the geiger counter before using some data of alpha particle counts as an illustration of the Poisson process; I would like a discussion of the Bell inequalities together with a modicum of quantum mechanical background to show how elegant probabilistic reasoning shows that the quantum world is truly random (unless you would like to go for an even more weird non-local deterministic theory)." (1997b)

Indeed, also economists are familiar with the concept of Brownian movement, or the random walk, and use this model for example in analysis of the stock markets. Or in the labour market, with labour supply LS and employment LE , unemployment is $u = 1 - LE/LS$: but u then basically is a probability, since the model does not provide an additional explanation why one person works and the other doesn't.

But Gill's argument does not convince me. The point is: you may *pose* that nature would be such, but you don't know *for sure*. You are still using only a model. The scientific challenge remains to develop a model that increases accuracy.

Yes, there is the Heisenberg uncertainty model that if you measure position then you no longer know speed, and if you measure speed then you no longer know position: and this model nicely captures a basic notion of uncertainty. But, try for a better model then - and take some thousands years more to do so. [64] [65] [66]

As a corollary, we can take a position on path-dependency (hysteresis) and chaos.

Some authors use the word 'chaos' in the sense of path-dependency. For example, a small variation in first conditions (starting point, parameter) can cause a widely different result - a butterfly flapping a wing can cause a tropical storm. Since we already have the term 'path-dependency' for this, we better reserve 'chaos' for the meaning of 'seemingly random'. A chaotic system, in this proper sense, then gives a fully deterministic description, but the outward appearance that some variables would be random. Here it is strange that people who are in favor of 'chaotic modeling' also use this to be against determinism.

Path-dependent and chaotic models can be useful. The orbit of Earth around the sun looks solid, but over the billion years it seems pretty random. There is Schrödinger's cat model that shows the macro world depending upon a micro state. There are the strange models in history and biology, where for example a meteor wipes out dinosaurs. OK, all these models exist, and they can be real good descriptions of true states of nature. But all this does not disprove the definitory deterministic predisposition of science. If you would run the movie again from the start (which is currently said to be a Big Bang, but I don't know about that), then you would get, by the models that science tries to develop, the same result. If you would argue that anything else might pop up, and your mother could be a dinosaur with a pig's head, and if you would develop models that would show this, then you are quite in danger of being out of science. (You would drop out on this definition, but could be in on the other criteria.)

Concluding this section, we find that definitions indeed guide our understanding of nature. The definition of science itself guides our perceptions - for example when it guides us into taking quantum mechanics as a model only instead of as 'reality itself'.

A reason to be strict about this definition of science is that people, who would argue that nature is basically random, would also tend to reject deterministic results of science. A deterministic result of science is for example (1) that divergent indexation of tax exemption and the standard of living causes a tax void, and (2) that the existence of a tax void can be used to 'abolish taxes' without costs. It would be a pity if this result were to be rejected because of a fundamentalist 'random view of the world'.

From stylized fact to definition

Our subject is the political economy of western welfare states, and in

particular employment and inflation aspects. This subject is quite complex, and we must be modest about our results. Of course we can use statistics of the national accounts, and thus indirectly we use the statistical labour of thousands of statisticians, and indirectly the results of thousands of firms and of millions of citizens that filled in their tax forms. Economic literature provides a wealth of models and interpretations of these data. In my case, I also rely on my own experience in constructing a national economic model. All this, however, does not mean that we can forget about modesty, on the contrary. Nevertheless, it is my conjecture that we can achieve a more enduring result than just awareness of complexity.

What is interesting in economic discourse is the concept of 'stylized fact'. When an economist observes some regularity, he is rather inclined to use that term. We shall use the term more conservatively, and we are hesitant about observing regularities. But we also can fruitfully employ the term when there is a regularity indeed. In some cases, when the regularity is so strong that our loss function comes in the epsilon zone, then we even can switch to definitions.

So we adopt the methodology:

- (a) state what we consider to be the stylized facts
- (b) define our concepts so that the stylized facts are covered by definitions
- (c) develop theorems and proofs
- (d) link back to conclusions about reality.

A *proposition* - as a statement on reality - can be regarded as a mathematical theorem about/within a model of stylized facts. When there is a tautology, we attain truth by definition.

We here deliberately refer to Bochenski (1956, 1970:20): "The word 'proposition' has been variously used, (...) nowadays commonly as the objective content of a meaningful sentence".

Some students of the History of Economic Thought will see a clear resemblance of above methodology and what Schumpeter called the "Ricardian vice". Quoted by Tintner (1968:7):

"His interest was in the clear-cut result of direct, practical significance. In order to get this he cut this general system to pieces, bundled up as large parts as possible, and put them in cold storage - so that as many things as possible could be frozen and "given". He then piled one simplifying assumption upon another, until, having really settled everything by these assumptions, he was left with only a few aggregative variables between which, giving these assumptions, he set up simple, one-way relations so that, in the end, the desired results emerged almost as tautologies."

This is almost exactly what we shall do, except that we generate tautologies.

Step (d) comes closest to the Popperian falsificationist criterion. Our deductions need not be insulated against testing, even though this present book abstains from econometric testing since we are too much involved in creating our concepts and constructing consistent and useful *propositions*. [67] Abolishing the Tax Void is a good and cheap test anyway for the relevance of this analysis.

It is useful to keep Solow's comment in mind:

"There is something deeply satisfying - not to say suspicious - about any proposition that seems to deduce important assertions about the real world from abstract principles." (1976:148)

So, advisedly, the reader better checks what we are doing here, and governments should run their own regressions and models before they make policy decisions. But of course I only dare to present my results here since I am confident that they, in the hands of competent and true scientists, allow a real advancement.

Relating to Hicks 1983

In his essay "A discipline not a science" (1983:365-375), John Hicks argues that economics is too far from the accuracy reached in the material sciences, and explains that he cannot 'altogether' deny that he himself has converged on a 'critical' attitude. This attitude concentrates on the clarification of terms, i.e. their definitions, also by using quite unrealistic models. For example: "Though the concepts of economics (most of the basic concepts) are taken from business practice, it is only when they have been clarified, and criticised, by theory, that they can be made into reliable means of communication." (p372-3).

Hicks then concludes that economics is a Discipline. His quote of Keynes (in II.7) above is taken from these pages. My position on this is twofold - the position of hard science with soft data. On one hand I embrace the critical attitude. Indeed, we should develop sound

definitions, and remain critical about how these are applied in communication. That is the meaning of the Definition & Reality methodology. And it brings us far, since we can advise to abolish the Tax Void without running regressions and a computer model. On the other hand, Tinbergen's efforts have not been in vain, and models with estimated coefficients are useful tools for policy analysis. For example, some economists may reject the *existence* of a Phillipscurve, and all economists should be critical about the data and the parameter values, but such a *relationship* remains useful in a macromodel that is used for evaluation of policy alternatives. It would be curious to accept the concept of a 'model' and to accept other relationships like a consumption function, and reject the use of a Phillipscurve: even though the uncertainties are quite comparable.

☪

In other words, our method remains econometrics, even though we end here with an increased awareness of the role of definitions. We are just in the phase that running regressions is useless if the model is no good. Regressions come in only when we have a good candidate, and regressions even might benefit from some defintory relationships. We even would like to do those regressions ourselves if we had the data and the time. So, for now, let us first develop what we conjecture to be the proper model.

20. Structural and reduced form

There is the useful distinction between the structural and reduced form:

- the structural form represents actual relations as good as possible,
- the reduced form gives the simplest representation, with the interaction minimised.

With y a vector of endogenous variables, x a vector of exogenous variables, and f and g functions, then a structural form is $y = f(y, x)$ and a reduced form is $y = g(x)$.

Since econometrics can only approximate reality, the true structural form can only be approximated. What we consider to be a structural form is an intersubjective consensus. We anyhow have to adopt an approximation, which means that many factors have been removed. However, for two models we can often clearly see that one is simpler than the other, and then we can usefully apply this distinction between the structural and reduced form.

The distinction between structural and reduced form also affects the structure of this book. The next chapters concern the structural form, actually starting with the textbook IS-LM model. We relax the assumption of homogeneous labour, and introduce heterogeneous labour. First we look at labour supply only. Then we look at supply and demand, and at the equilibrating dynamics, which causes the topic of the Phillipscurve. We show how the Phillipscurve and the Constant-Wage-Inflation Rate of Unemployment (CWIRU, a.k.a. NAIRU or natural rate) shift as a consequence of minimum wages or poverty. We then relate minimum wages and poverty to developments in taxation. The co-ordination failure on taxes and minimum wages not only causes the internal imbalance on the labour market, but also an external imbalance, with international trade.

The discussion of the structural form results into the need for more scientific clarity. Though much seems to depend upon empirical parameters, some aspects however are more fundamental. This leads to the discussion of the reduced form. We first develop a theorem on the influence of taxation on employment and unemployment regimes in welfare states. Since taxation depends upon social choice, we then discuss Arrow's theorem on social choice (structural form again). We also note that there may be a confusion about inefficiency and the existence of a 'free lunch'. Having established the possibility of rational social choice, we then develop a theorem on stagnation in the policy making process (reduced form again).

21. Direct application to the Economic Supreme Court

In chapter 8 we stated: "If the government on the one hand would desire to use the results of scientific advice for its budget process, and on the other hand would not opt for an Economic Supreme Court, then its *definitions* would be logically inconsistent, and it would thereby tend to create a cause for dishonesty and improper manoeuvring and thereby corrupt its processes."

We can directly apply our Definition & Reality methodology. The point is that desiring for a scientific base and not making a Court is logically inconsistent. Parliament and President may '*define*' their 'Council of Economic Advisers' as 'scientific' but when there are little safeguards, then *reality* takes over, and the Council will *de facto* not have sufficient power to resist political meddling.

The appendices contain an example draft for a Constitutional Amendment for an Economic Supreme Court and a description, taken from the White House internet site, of the CEA. The difference should be clear.

Law-givers know: If a law does not fit logic and reality, then people will see themselves forced to 'break' the law. "You are damned if you do, and damned if you don't." People in such situations will tend to grow dishonest, since it is often easier to massage events rather than clearly state that the law is impossible and go on strike or whatever. They don't see it as 'dishonest', but as 'flexible'. And once people are on that road, they will rationalise their behaviour by thinking that this is the way that the world works, and become more willing to perform other acts of dishonesty.

Conversely, once sufficient safeguards are in place, then the Council is *de facto* an Economic Supreme Court (even if it does not have that name). With a properly defined scientific base for the budgetary process, economists could also more confidently predict the economy's course, since there would be less random noise and chaos about the application of known knowledge.

22. Methodological summary

We consider all Western economies, or, more properly with Japan included, the OECD area. Hence, the student of this book will expect masses of OECD data, and masses of structural models of the OECD countries, or at least a model for the whole OECD area. There is none of that. We in fact use only some example data for the small country of The Netherlands. Why is that? And how can we possibly utter our ambitious claims? The answer to these questions is fourfold:

- there are mathematical theorems and proofs for the reduced form of a typical welfare state
- we use some key properties that will be documented here
- this chapter on methodology explains the validity of the method
- for the data and structural models we refer to 'existing economics'.

The approach of this book is to use logic in order to circumvent the uncertainty of parameter estimates. Though the book doesn't give full statistics, it is conjectured that the theorems capture the stylized facts. A *proposition* - as a statement on reality - can be regarded as a mathematical theorem about/within a model of stylized facts. When there is a tautology, we attain truth by definition.

Our **first proposition** establishes conditions under which both unemployment and full employment are possible. This relates to the *partial* arguments of economists about the labour market. Our **second proposition** gives the integral argument, or *general* theory, how (un-)employment situations are managed. The employment regime can be chosen by conscious choice, or there is lack of knowledge. Lack of knowledge forks into two cases. With full employment, the situation is dubbed 'chance'. With unemployment, it is called a co-ordination failure.

It is useful to state that our point of departure was not mathematical economics itself. This book has been written against the backdrop of the voluminous studies Central Planning Bureau (1992a&b) and Colignatus (1992). It is from this experience that these two propositions have been selected as being of foremost importance. We want to focus on main mechanisms that block full employment and prosperous growth in modern welfare states. It is thought that the two propositions, in a sense simple but in another sense complex, help to clarify a fruitful direction for both analysis and policy improvement.

To be sure: this approach does not imply a rejection of time series econometrics! I am an econometrician myself. Below I will e.g. develop

a definition of 'risk' that deals with uncertainties - and in my view the 95% confidence interval should be replaced by an interval based on a well specified loss function. So I am supportive of uncertainty approaches. However, econometric models also contain definitions and institutional equations, and it is my conjecture that these have not gotten the attention required. In particular the regime switch of 1950-1970 to 1970-2005 will be difficult to determine by time series methods. Studying marginal changes within a regime will not uncover results about the switch. It would be wrong if time series analysts would only accept time series as data, and not such regime states. The Definition & Reality methodology then can help us out. [68]

Governments that become interested in the present analysis will no doubt require that it is tested against the data of their own country. This is advisable indeed. However, the claims of this book are primarily mathematical certainties, and additional empirical data will mainly provide didactic assurance. Since country parameters are different, practical policy must rely on the structural models of course, and data will be needed for detail decisions. But at an abstract level, the developments would be similar.

Book VI

Structural models

Chapter 23 gives a textbook macro-economic model so that we better appreciate the point of reference of 'existing economics'. Chapter 24 clarifies heterogeneity and nonlinear taxation. There is nothing new here yet either. The subsequent chapters then take up the same subject matter, and gradually add elements and interpretations that support the novel analysis.

23. A textbook macro-economic model

Our textbook model is a very simple and unpretentious first year undergraduate model. It is not interesting for itself, but for our later discussion.

The IS-LM model

We follow Dornbusch & Fischer (1994), chapters 1 - 4. The basic macro-economic identity for annual real values is:

$$C + G + I + NX \equiv YR \equiv YD + (RTAX - TRF) \equiv C + S + (RTAX - TRF)$$

<i>C</i> = consumption	<i>YD</i> = <i>YR</i> - <i>RTAX</i> + <i>TRF</i> = <i>C</i> + <i>S</i> = disposable income
<i>G</i> = government consumption	<i>TRF</i> = government transfer payments [69]
<i>I</i> = investment (incl. unintended stocks)	<i>RTAX</i> = real tax revenue
<i>NX</i> = exports minus imports	<i>DEF</i> = <i>G</i> + <i>TRF</i> - <i>RTAX</i> = <i>S</i> - <i>I</i> - <i>NX</i> = government deficit
<i>YR</i> = real gross domestic product	<i>S</i> = saving [70]

We take *G*, *TRF* and *NX* as exogenous and known. We are now only interested in expectational equilibrium. Aggregate demand is $YR^* = C^* + G + I^* + NX$. With the rate of interest *i* and the marginal tax rate *r*, behavioural relations are:

$$C^* = TRF + c(YD^* - TRF) + C_0$$

$$I^* = I_0 - b i^*$$

$$RTAX^* = r YR^*$$

In equilibrium $C = C^*$ gives $YR^* = YR$ - since $C = C^*$ iff $YD = YD^*$ iff $I^* = S^* = I = S$. This can be represented by the IS curve:

$$YR = TRF + c(YD^* - TRF) + C_0 + G + I_0 - b i + NX \Rightarrow$$

$$i = (C_0 + G + I_0 + NX + TRF - (1 - (1 - r) c) YR) / b \quad (IS)$$

For the money and bond market:

$$L + DB \equiv WN / P \equiv MX / P + SB$$

L = demand for real balances

WN = nominal financial wealth

DB = demand for real bond holdings

P = price level

SB = real value of the supply of bonds

MX = money stock ($M1$, $M2$ or $M3$) [71]

Liquidity demand is:

$$L = k (1 + h / (i - i_{min})) YR$$

Equilibrium on the money market $L = MX / P$ gives the LM curve:

$$i = i_{min} + \frac{h k YR}{MX / P - k YR} \quad (LM)$$

Intersection of the IS and LM curves gives equilibrium for YR and i , and from these the other variables can be solved, in particular the price level $P = MX / L[YR, i]$.

Note that we also use: [72]

$$Y = P YR$$

While the IS-LM model already tells us something about inflation - via the quantity of money - there is also the labour market where wages drive up costs and prices. The IS-LM sectors of the economy and the labour market are linked via Value Added Y .

The production function

For our purposes we can use a Cobb-Douglas function with employment LE and capital KE :

$$YR = Y_0 LE^a KE^{1-a}$$

$$Y \equiv P YR = W LE + i P K KE,$$

We assume that firms maximise profits - and since we assume constant returns to scale, there is no surplus. If firms accept wage W , then the marginal productivity of labour equals the real wage W / P , and then this determines LE which must be at most labour supply LS . Unemployment then follows as $u = 1 - LE / LS$. If companies also accept the rental price of capital, then the marginal productivity of capital must equal $i P K / P$, and this determines the employed real capital stock KE , which must be at most total stock KS .

The additional equations from these marginal conditions are (and we assume expectational equilibrium on these too):

$$LE = \alpha Y / W$$

$$KE = (1 - \alpha) Y / (i P K)$$

With YR , P and i given from above, there is one degree of freedom from either $P K$ or W . It is customary to close the model with a relationship that sets the average wage W . [73]

YR = real income

LS = labour supply

LE = employment

u = rate of unemployment

KE = employed real capital stock

W = average wage

$WT = W LE =$ total wage

In a full model, the price of capital must relate to investments I and to wealth WN . Also, apart from a theory on unemployment, we also need a theory on idle capital $KS - KE$. We could also include intermediate goods, as these appeared to have been important in the Oil Crises. These alternatives however lead too far for our purposes.

Important for our purposes however is inflation. We already indicated that the price level P is relevant for inflation. The crucial thing to note is that inflation is the relative *change* of the price level, so that it is a dynamic concept.

Dynamics versus statics

Let p be an arbitrary price.

Statics assumes a timeless dimension. With supply $S[p]$ and demand $D[p]$, equilibrium (in expectations) is given by $S[p] = D[p]$ and it solves for the equilibrating price p .

Dynamics concerns developments in time. The price movement $p' = dp/dt$ is related to excess demand $D[p] - S[p]$, so that $p' = dp/dt = f[D[p] - S[p]]$. The solution of this differential equation gives the movement towards equilibrium. Dynamics causes different concepts of equilibrium: depending upon the specification of variables and function, the equilibrium can be market clearing (p°) or the fulfillment of expectations (p^*). Economic agents generally have different speeds of reaction when expectations are not fulfilled. When there are surprises, there can be a 'trade-off' between prices and quantities.

Phillipscurve

For the labour market, dynamics implies a relationship between unemployment and the change in wages. This relationship is called the (wage-) Phillipscurve. Sometimes there is an additional assumption of a strong relationship between wages and product prices, [74] and then the (price-) Phillipscurve gives the relationship between unemployment and prices.

The existence of a Phillipscurve thus follows essentially from the concept of dynamics itself. For the labour market, the price is the wage w and excess demand is represented by unemployment u (thus negative excess demand; with vacancies neglected partly because of unreliable measurement), so that $w' = f[u]$. Much debate in macro-economics about whether the Phillipscurve 'exists' or not, could have been cut short by noting that it is a standard market adjustment equation. The true debate is about the proper form and stability of its parameters.

In the simplest model we choose inflation, [75] and have, with $u = 1 - LE/LS$:

$$d\text{Log}[P] = f[u]$$

and this would add another restriction that closes the model. For example:

$$d\text{Log}[P] = d\text{Log}[P]^* - 0.1 \text{Log}[u/u^*]$$

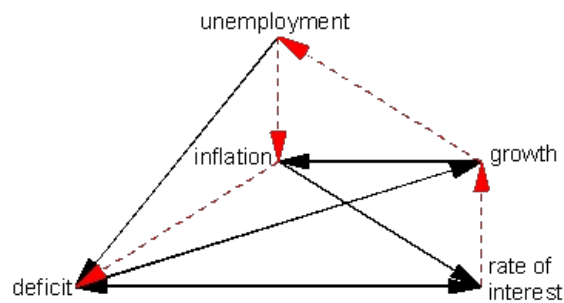
would give an expectations augmented form, and when $u = u^*$ then expectations will be fulfilled, and $LE = LS(1 - u^*)$.

It is useful to note that above model does not yet contain an explicit reaction function of the monetary authorities with regarding to inflation. Money can be fixed or chosen to grow at a predetermined rate. In practice there will be a flexible reaction, and then part of the 'Phillipscurve regression between $d\text{Log}[P]$ and u' will reflect that reaction function.

Macro-economic interactions

The textbook relations are simple in themselves, but the interactions already can be rather complicated. Figure 18 presents some common macro-economic interactions.

Figure 18: Some macro-economic interactions



The influence of income in that figure is stated in terms of growth $d\text{Log}[YR]$, [76] and the influence of prices is stated in terms of inflation $d\text{Log}[P]$. Positive transmissions are in black and explained in Table 5, negative transmissions are dashed in red and explained in Table 6.

Table 5: Positive impulses

<i>Positive</i>	<i>Cause</i>	<i>Prime effect</i>	<i>Then</i>	<i>Then again</i>
$YR \rightarrow P$	growth	increases demand	adds to inflation	
$u \rightarrow DEF$	more unemployment	less income, less tax revenue	more expenditure on benefits	higher deficit
$P \rightarrow i$	more inflation	the Central Bank (CB) raises interest rates to fight it	possibly, though, inflation means more profits and a reduced demand on loans	and thus a lower rate of interest: but then the CB will maintain the level of interest
$i \rightarrow DEF$	higher interest rates	the government has a higher interest bill	higher deficit	
$DEF \rightarrow i$	a higher deficit	more demand for loans, more supply of bonds	thus a higher rate of interest	
$DEF \rightarrow YR$	a higher deficit	sustained expenditure	and thus sustained growth (at least by that channel)	

Table 6: Negative impulses

<i>Negative</i>	<i>Cause</i>	<i>Prime effect</i>	<i>Then</i>
$u \rightarrow P$	more unemployment	lower wage demands	and thus less inflation
$P \rightarrow DEF$	more inflation	more tax revenue	and thus a lower deficit
$i \rightarrow YR$	a higher rate of interest	makes investments more costly	and thus lower growth
$YR \rightarrow u$	more growth	more demand for labour	lower unemployment

24. Heterogeneity and nonlinear taxation

Heterogeneity versus homogeneity

Homogeneity assumes that $S[p]$, $D[p]$ and p are real variables, while heterogeneity assumes vectors or densities. This book takes the density approach. In fact, employment $e[w] = \text{Min}[s[w], d[w]]$ also provides the earnings or income distribution, i.e. the function that gives the number of people earning a level of income w , for labour supply $s[w]$ and labour demand $d[w]$.

Nonlinear versus proportional taxation

The proportional tax is rY . A linear but non-proportional tax is *Bentham* $[w, x] = r(w - x)$, though proportionality comes back again by assuming $x = 0$. A nonlinear tax adds curvature (see chapter 29), and

then interacts with heterogeneous labour.

Some literature

The following references put the argument into perspective.

In his presentation of the IS-LM model, John Hicks (1937) could disregard differences in labour as being of secondary complication. For our purposes, however, the case of heterogeneous labour causes a crucial difference. Policy co-ordination then involves three distributions:

1. the gross income distribution that corresponds to the productivity distribution,
2. the net income distribution aspired by the policy maker ('society'),
3. the actual net income distribution, resulting from taxes imposed (including e.g. the social security 'insurance' payroll tax) and from expenditure.

There is early recognition in the literature of the need for heterogeneous labour in discussing dynamics. For example, 20 years ago, Solow (1976:152), occasionally but not consistently using the more accurate term 'surface':

"George Perry, who was one of the earliest quantifiers of the Phillips surface, has recently produced an alternative explanation of great interest [reference]. Perry's basic insight is that the aggregate unemployment rate may be an ambiguous measure of pressure in the labor market when the composition of the labor force and of the group of unemployed is changing. (...) In other words, the Phillips curve would have shifted upward. (...) Perry quantifies this observation by making the plausible assumption that an unemployed body generates downward pressure on the wage level proportional to the amount of "unemployed labor" he or she represents. In turn, the amount of unemployed labor can be measured by the number of dollars of wages it represents."

No economist working in the field and worth his salt will have neglected Solow's paper. Issues of the substitutionability of one kind of labour for another, and of dispersion measures for the differences in responses, can found even earlier in the literature.

Van Praag & Halberstadt (1980) present a continuous productivity distribution.

Bruno & Sachs (1985) give a standard reference for stagflation. Their formal analysis uses homogeneous labour and proportional taxes, though some of their statements allow for an interpretation of heterogeneity and nonproportionality.

The need for modelling heterogeneous labour and nonproportional taxation is clearly recognized in the literature, see e.g. Beenstock et al. (1987) and Minford & Ashton (1993). Layard, Nickell & Jackman (1991), another standard, allow for heterogeneous labour, yet tend towards proportionality in taxation.

In addition, these references use dynamics but do not explicitly discuss the consequences of changes in tax parameters. Auerbach & Kotlikoff (1987) give a wealth of information on fiscal dynamics but do not specifically tackle stagflation.

Other references which put the Phillipscurve in perspective are Okun (1981), Blanchard & Fischer (1989), Friedman (1991), The Economist (1994) and Phelps (1994). Extensive theoretical and empirical work has been done by the Central Planning Bureau (1992a&b), Gelauff (1992) and Colignatus (1992b).

25. Summary of current views

It is useful to recognise some current views on the labour market and the influence of taxes. This allows us to better see the impact of our new analysis.

A simple view

There exists a simple popular view that makes two errors:

- it is *static* and not *dynamic*
- it assumes *homogeneity* and not *heterogeneity*.

This model is the comparative statics model with homogeneous supply and demand for labour. Borjas (1996:159), Mankiw (1998:125) and The Economist of February 26 1994 present that model. As a model it of course is consistent and it can help us to get our thoughts started, but as a representation of real markets it is erroneous.

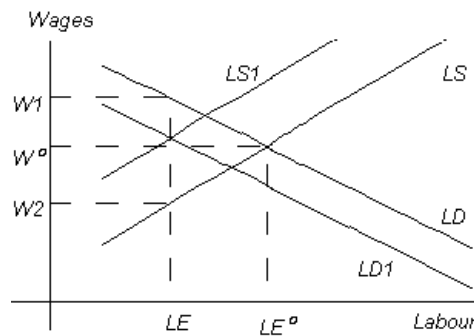
Figure 19 gives the wage W on the vertical axis and supply and demand quantities on the horizontal axis. (Note the causal order.) It must be mentioned that marginal tax rates have played a role in the

deduction of the supply and demand curves.

In this Marshallian model, the original equilibrium is attained at the intersection of the LS and LD curves, at wage W° and employment LE° . An income tax causes workers to demand a higher wage, and supply shifts up, to $LS1$. Premiums that raise wage costs for employers cause these employers to offer a lower direct wage, and demand shifts down, to $LD1$. The new equilibrium of $LS1$ and $LD1$ is $LE < LE^\circ$ where employers pay direct wage $W1 > W^\circ$ and where workers receive net $W2 < W^\circ$.

For this model, with supply and demand schedules derived with marginal analysis of utility and profits, there is an important role for statutory marginal tax rates. First best here are lump sum taxes and zero marginal rates.

Figure 19: Statics
Marshallian model for the influence of the tax wedge



There are clear objections to this model:

- It is comparative statics, with homogeneous and flexible labour.
- It concerns any kind of tax, while some taxes are socially desired and generate employment. The model doesn't distinguish between optimal and suboptimal taxes.
- Empirical research shows that labour supply elasticities are low. Elasticities are higher for partners, but that is less relevant here. People are very much in the position that they have to work for a living, and taxes generally pose no restraint on the availability for the labour market. This means that $LS \sim LS1 \sim vertical$. (Borjas (1996) shows this graph too.)
- The model does not really allow for unemployment. We might define $U = LE^\circ - LE$, but LE° is an unobserved variable. Firms and workers react to observed variables, and in those terms there is full employment. Even if labour would be inflexible in this model, then there still would be no involuntary idleness at the net wage earned.

The use of this model thus is limited. Mankiw (1996) correctly presents the model as a 'tax incidence' model, and we should be hesitant of other conclusions.

The Simple View however regards this model as a real description of real labour markets, and it thus makes the category mistake of using arguments concerning the income distribution for issues of growth and employment.

The reader is advised to read again Chapter 2 of Keynes's 1936 *General Theory*. The *General Theory* is in my perception an effort to seriously develop dynamics. Keynes's precursors did discuss dynamic developments, but always ended up in static modelling. See also Patinkin (1976:140 footnote 4).

In the following quote, Keynes discusses a real wage reduction caused by prices. For our purposes, we might substitute a real wage reduction caused by taxes.

"To sum up: there are two objections to the second postulate of the classical theory. The first relates to the actual behaviour of labour. A fall in real wages due to a rise in prices, with money-wages unaltered, does not, as a rule, cause the supply of available labour on offer at the current wage to fall below the amount actually employed prior to the rise of prices. To suppose that it does is to suppose that all those who are now unemployed though willing to work at the current wage will withdraw the offer of their labour in the event of a small rise in the cost of living. Yet this strange supposition apparently underlies Professor Pigou's *Theory of Unemployment* [voetnoot] and it is what all members of the orthodox school are tacitly assuming." (Keynes (1936:12-13)).

Note, by the way, that the format of Figure 19 can always be used in terms of the *average* wage W . So the format of Figure 19 may be inviting to our intuition, in that we think that we indeed can draw a diagram like

that, but we then should be aware that our true model is heterogeneous labour and not homogeneous labour.

A complex view

An alternative view is more empirical, thus inherently more dynamic, and builds on Keynes' observation. Empirical research, see e.g. Ashenfelter & Layard (1986), Theeuwes (1988), Hum & Simpson (1991) and Gelauff (1992) shows that marginal tax rates have 'surprisingly' low elasticities. The reason for a lesser importance of marginal rates is that labour supply is not flexible, but rather fixed. That labour supply is primarily given by demographic factors, is for example a well known assumption of practical models developed at the Dutch Central Planning Bureau. In Western economies people will have to become active on the labour market in order to earn a living, and taxes hardly form a barrier. People are still very much like Marx's proletariat, and they have little else to fall back on but to supply their labour. There is some choice for partners and for people on benefits, but this does not have a major impact. For the majority, if anything, the average wedge is more important than the marginal one, see Den Broeder (1989). Recently Minford & Ashton (1993) see scope for a larger effect of marginal rates, but, their study is still far from explaining stagflation, partly for the reason that it is not fully dynamic.

By consequence, the major equilibrating forces exert themselves on the wage and the related employment. Here arises the dynamic situation of (wage) inflation and unemployment, and thus the issue of the Phillipscurve. Thus, conceptually, tax rates have their major impact not on labour supply but on the Phillipscurve.

The next question then is whether their effects are positive or negative. The common argument is that a higher marginal rate fuels inflation. Whether this is the case then becomes the next issue.

Efficiency wages intermezzo

Before we can continue the discussion, a note on the 'efficiency wage theory' is required. The idea is here that, though people are forced to work to earn a living, they still can choose whether they shirk or not. They take account of a probability of getting caught and getting fired, but supervision would be expensive, and, if fired, one eventually could find another job. Unemployment then is required to discipline the workers. Borjas (1996:459) provides an introductory discussion, and the graphs are quite similar to the supply and demand schedules of old.

I tend to regard this approach as an example of academic excess. This may be an error on my side, but let us look at some of the arguments: 10% of the European labour force is unemployed, hence Europeans apparently shirk a lot ! And employers are so dumb that they cannot think of cheap ways to determine productivity, like setting standards and such. Agreed, shirking is undoubtedly a phenomenon, and eventually the superior economic model will include a subtle relationship between wage, effort and productivity to determine the last digits, but all this is less relevant for the Great Stagflation and the need for an Economic Supreme Court.

A more sophisticated view

Graafland (1990) introduced another approach at the Dutch Central Planning Bureau, and he refers here to Hersoug (1984). The Phillipscurve here is derived using a model of wage bargaining between unions of employers and employees. The approach is adopted by Gelauff (1992) on the CPB model MIMIC, Gelauff & Graafland (1994). It recently is refined by Graafland and De Mooij (1998), Bovenberg, Graafland and De Mooij (1998), Jongen and Graafland (1998), Graafland & Huizinga (1999), [77] Graafland and Nibbelink (1999), Oers, De Mooij, Graafland and Boone (1999), and De Mooij (1999). In this approach, a higher statutory marginal rate actually increases employment, instead of reducing it as the Simple View and many standard Phillipscurves would hold. The mechanism is as follows:

- A higher marginal rate (under constant average) penalizes wage demands, lowers such demands, reduces (wage) inflation and thus increases employment.
- A higher average rate (under constant marginal) causes compensating wage demands at the margin, and reduces employment.

These properties actually are well known, as they are consistent with analyses concerning a Tax-based Incomes Policy (TIP). For example the Congressional Budget Office (1977:119):

"In recent years there have been proposals to use tax incentives and other

schemes to encourage more moderate price behavior. (...) Rather than overriding market forces, these newer proposals attempt to take advantage of market incentives by making moderate price and wage increases a matter of self-interest for firms and employees. The best known of these proposals involves tax incentives to reward or penalize wage decisions that deviate from some established standard.”

This view however still does not take account of the dynamic marginal rate. There are also the issues of labour heterogeneity and optimal taxation that we have encountered in discussing the Simple View, but that have not had sufficient attention. These issues will be discussed below.

Confusions

Given more than one view, there is scope for confusion. This has in fact occurred.

- The OECD policies referred to above, directed at lowering statutory marginal rates, have been advocated using the rhetoric of the Simple View even though economic advisers often are aware of the Complex View.
- If one would really think that high marginal rates reduce work effort and supply, then a situation of high unemployment would call for higher rates - that would reduce unemployment. Policy however has been to reduce rates.

Secondly, when these views are confronted with the effects of the policy of rate reduction, there again is ample scope for confusion.

When unemployment has been reduced, then this is being seen as corroboration of the Simple View. For example the data on the US now show the combination of a reduction of taxes on higher incomes and some reduction of unemployment, and it will now be difficult for policy makers to accept other lines of arguments. Actually, in so far as there has been some success in practice, it is because the policies have also lowered average rates. Higher budget deficits have been relied on to pay for additional benefits and average rate reductions for higher incomes. The reduction of marginal rates actually had a negative impact.

In most cases unemployment has remained high. In this case one should expect that policy makers would reconsider their views. They don't seem to do this, and rather look at the few cases where there seems to have been success along the expected pattern.

A specific example is the Dutch 1990 tax reform (known as “Oort reform” [78]). This reform was supported by computations using the MIMIC model, see Gelauff (1992). The reform reduced both marginal rates and exemption. The reduction of statutory marginal rates reduced Phillips curve sensitivities, and induced larger wage claims and lower employment. The reform however also included a reduction of average taxes, and this caused employment to rise on balance. We may restate the situation in more mundane terms: the reduction of average taxes was sold on the political market as a reduction of marginal rates. Politicians had their eyes fixed on the reduction of marginal rates and the reduction of unemployment, and they got what they wanted to see, without realising that the mechanism in MIMIC was entirely different, and that proper exploitation of this mechanism would lead to even lower unemployment.

26. Heterogeneous labour

We will first discuss heterogeneous labour supply, and forward a hypothesis on its distribution. Note that supply is difficult to observe, since generally we only observe actual employment, which is the minimum of supply and demand. However, data on actual earnings do allow the encouraging conclusion that the earnings distribution can be approximated by a lognormal distribution. For an indication we look at Dutch data on the distribution of income in 1950 and 1988. We complete this chapter by a more thorough sets of definitions for earnings, cost and income accounting, and we construct integrals that are relevant for the minimum wage.

Dromedary supply

Let us first regard labour supply.

At a Dutch economists “Masterclass” session in Fall 1991, Orley Ashenfelter explained that labour supply was unresolved and actually some kind of a researcher’s nightmare. In a break I put my suggestion on

the blackboard, and my 'quiggly' line (see below) at least drew the compliment of an amused smile. I almost put this suggestion into Colignatus (1994a), but backed away from that since it was not essential for that paper (and I used only the normal right hand side of the supply graph). However, to my surprise and pleasure I saw that same quiggly line in De Groot & Keuzenkamp (1995) who discuss results of Quah (1993).

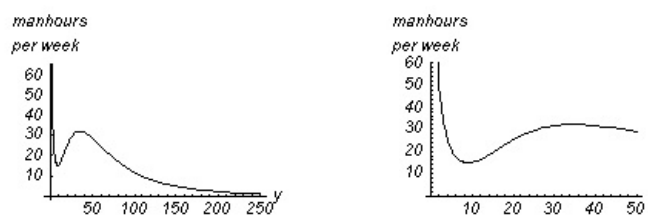
De Groot & Keuzenkamp have another subject than labour supply. Their problem is whether international economic growth results into convergence, as Adam Smith's "The Wealth of Nations" seems to imply. De Groot & Keuzenkamp refer to the results of Quah (1993) who has compiled the distribution of output per labourer per country, which turns out to be that quiggly line.

To understand the point, let me first explain my reasoning on labour supply. At low productivity, one has to work 24 hours around the clock in order to survive. For example, if subsistence is at B and productivity is y , then the hours are B / y . Hours thus quickly rise when y drops (the working poor). When productivity increases, one quickly starts working less hours, particularly since the kind of work at that level often concerns hard labour. At higher levels of productivity again, the kind of work is less exacting and pay is better, and one may work longer hours again. However, at the highest levels of productivity, labour again becomes a relative disutility. In summary, when plotted in a graph, the figure looks like a dromedary, starting high at the left, having a dip in the neck, then the bump, and sliding away towards the tail.

If labour supply is like this, then it likely affects the productivity distribution across nations. While every individual has his or her own parameters, aggregation may average things out, and as a result one nation then may stand for a certain income group. Thus Quah's finding is consistent with my intuition and indirectly confirms it.

Figure 20 plots the quiggly line, for imaginary income y in thousands of dollars and subsequent working hours per week, for both long and short ranges of income so that the curvature can better be appreciated.

Figure 20: Supply in hours per week, depending upon income



Note: These are not observations, just give an hypothesis on shape

I'm still working on a correct form of the complete utility function. Barro & Sala-i-Martin (1995) give a recent discussion of the trade-off of work and leisure in the context of growth, and that might be a fruitful framework. However, for the present purposes, our development may stop here.

Dutch income distribution data

The literature on the distribution of income has resulted into a general impression that this distribution can be approximated by a lognormal distribution, see e.g. Pen & Tinbergen (1977). For the purposes of our exposition it is useful to test this impression. [79] Also, since we will discuss long periods of indexation, notably from 1950 till 2002, it is also useful to look at the distribution in 1950 and a recent one. We then take the distribution data in the appendices for Holland 1950 and 1988.

Figure 21 and Figure 22 plot the results of a (rough) estimation. It appears that we get the best fit when we transform the data into logarithms (and recompute the frequency densities - i.e. the transformation required to deal with different class sizes). The logarithmic data are approximately normal, as can be seen in the plot of $\log[\text{income}]$ versus its frequency density. We can transform the estimated distribution for a plot in the income-frequency format.

Figure 21: Dutch income distribution 1950

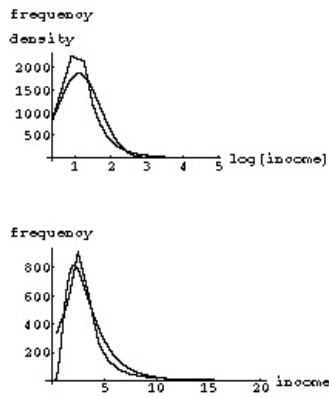
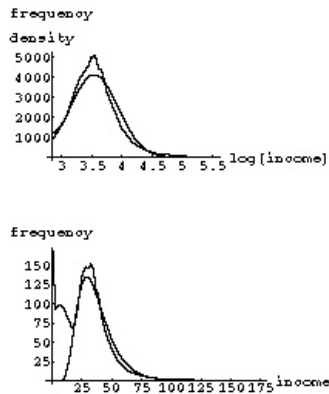


Figure 22: Dutch income distribution 1988



In the 1988 plot, the estimation has been done with the 1988 ‘parttimers’ dropped, but they are included again in the income-frequency plot so that we can better appreciate that their inclusion would confuse a discussion on fulltimers. But it is nice to see the dromedary shape returning.

We conclude that income can indeed be approximated as a lognormal distribution, and throughout time; at least as a stylized fact that we can use for propositions and illustrations. [80]

Definitions and formulas

There are some useful definitions and formulas for heterogeneous labour markets. These hold for any distribution, not just the lognormal distribution. Let y and w be micro values that have a certain density. First of all, there are the following accounting definitions, for annual and nominal values:

- π = the profit rate, expressed as a markup on labour costs
- y = labour costs + profit = $w(1 + \pi)$ = product revenue = productivity
- labour cost quote = LCQ = $w/y = 1 / (1 + \pi)$
- labour costs = w = (direct) wage + nonwage (but labour related) costs
- w = net labour income + (direct + indirect) taxes + premia + other nonwage costs
- tax = $T[w]$ = (direct + indirect) taxes + premia
- gross labour income = labour costs - other nonwage costs = net labour income + tax
- Neglecting the “other nonwage costs” gives w = labour costs = gross labour income. (Thus the w are labour earnings only if the other nonwage costs are zero.)

Observed labour costs have a density $f_w[w]$. Since the product is $y = w(1 + \pi)$, equalisation of profit rates with respect to labour would give the labour cost density $f_w[w]$ as a shift of the productivity density $f_y[y]$. Normally, though, the profit rates are equalised in terms of capital, which for example causes different Labour Cost Quotes (LCQ) per sector of industry, and then the relation between $f_w[w]$ and $f_y[y]$ is a more complicated affair.

$(w - T[w])$. But supply can, with the neglect of “other wage costs”, be regarded as a function of labour cost w , as:

$$s[w] = sp[w - T[w]]$$

Labour demand is a density $d[w]$. Total supply follows from the integral:

$$LS = \int_0^{\infty} s[w] dw \quad \& \quad LD = \int_0^{\infty} d[w] dw$$

The employment density is the minimum of supply and demand, and equals the observed labour cost density:

$$e[w] = \text{Min}[s[w], d[w]] = fw[w]$$

For total employment we take account of a minimum wage M .

$$LE[M] = \int_M^{\infty} e[w] dw$$

For the discussion below it is also useful to compute aggregate labour costs and its (nominal) tax revenue:

$$WT = WT[M] = \int_M^{\infty} w e[w] dw$$

$$TAX = TAX[M] = \int_M^{\infty} T[w] e[w] dw$$

Important are the average wage $W = WT / LE$ and the average tax rate $ATXR = TAX / WT$ (when we can neglect other nonwage costs).

☞

Densities for unemployment ud and vacancies vd follow from the difference between supply and demand and actual employment:

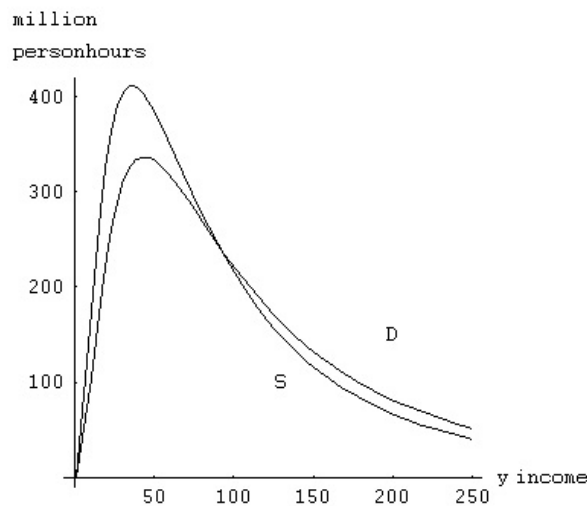
$$ud[w] = s[w] - e[w] \quad \& \quad vd[w] = d[w] - e[w]$$

The aggregate unemployment and vacancy are U and V , and their rates are:

$$u = (LS - LE) / LS = u[M] \quad \& \quad v = (LD - LE) / LS = v[M]$$

Figure 23 gives the stylized fact that vacancies tend to occur at higher income brackets and unemployment at lower ones. The figure is quite stylized, since it is a difficult issue to construct plausible $s[w]$ and $d[w]$.

Figure 23: Supply and demand of labour



☞

If labour supply LS was homogeneous, we would have difficulty explaining that $u LS$ would be unemployed, since these persons are similar by assumption. Basically then u is a probability.

For heterogeneous labour we could use characteristics and a mechanism that explains why some are employed and others not. This mechanism could be related to the shift of the densities over time due to aggregate demand, inflation, technology, job changes and the like. In fact, we would use such methods to determine $ud[w]$ and $vd[w]$ in practice - and perhaps we would not start with w as the defining characteristic, but start with other characteristics and work towards the wage. However, we will not look into this deeply. We will use heterogeneity mainly to explain the effect of the minimum wage. For a level of income above the minimum wage we again assume some probability, quite analogous to the homogeneous case. Basically, an agent has offers for various kinds of jobs and incomes, and associated probabilities (and one for unemployment). The $s[w]$ and $d[w]$ thus have a stochastic base.

Minimum wage unemployment differs from the 'normal' unemployment above the minimum. Thus:

$$u = um + un$$

$$um = \int_0^M s[w] dw / LS = um[M]$$

Only part of um can be gainfully employed when the minimum wage would be abolished.

$$ume = \int_0^M e[w] dw / LS = ume[M]$$

Only un will exert a meaningful pressure on wages. A major dynamic process is that um rises over time, contributing to the phenomenon of hysteresis. Labour market processes and wage settlements might stay stable in terms of un , i.e. the "normal" unemployment rate, but they shift in terms of u , the overall unemployment rate.

One may wonder why M is nonzero, when its abolition would create employment ume . The apparent reason for governments is that labour markets are not fully competitive and require some regulation. This issue is taken up again in the next chapter on subsistence.

☪

These integrals don't say how large the densities are. An indication of how much M 'bites' is difficult to find. An approach is the following. Let us define ms such that (for example) 1% of supply has an earning power of less than ms . Similarly, md for demand. Then Table 7 distinguishes six situations. [81]

Table 7: Combinations of ms , md and M

	$ms < md$	$md < ms$
Minimum wage irrelevant ($M < md$)	$M < ms < md$	$M < md < ms$
Minimum wage irrelevant ($M < md$)	$ms < M < md$	
See point (b) below.		$md < M < ms$
See points (a) and (b) below.	$ms < md < M$	$md < ms < M$

There are some notable effects:

- On the supply side, if $ms < M$, then would-be earners of $ms < w < M$ become eligible for benefits. When they accept these benefits voluntarily or from social pressure, they, in a sense, form no real supply. Yet they are supply, otherwise they would not be eligible for a benefit.
- On the demand side, if $md < M$, then there would be a real demand for $md < w < M$ if government would reduce M . But this demand is not relevant when M exists.

☪

A crucial point to see is that, as we here are concerned with

productivity, that we can use subsidies to manipulate the densities, for example by subsidising a particular industry or profession. Doing this of course causes an accounting problem: does the w on the horizontal axis measure productivity before or after such subsidy? The most practical approach is to use w inclusive of subsidies - because market measurements are always inclusive. Subsidising firms would allow them to hire at higher wages: this would shift d to the right. Subsidising workers would allow them to work for lower wages: this would shift s to the left. What happens to employment is not a priori obvious.

☪

It turns out that the minimum wage is important in practice. Our analysis will strongly rely on minimum wage unemployment. In this we differ a bit from the original position taken by Keynes. As Tobin (1972: 122) states:

“But why is the money wage so stubborn if more labor is willingly available at the same or lower real wage? Consider first some answers that Keynes did not give. He did not appeal to trade union monopolies or minimum wage laws. He was anxious, perhaps over-anxious, to meet his putative classical opponents on their home field, the competitive economy.”

In my view, Keynes's argument (as further explained by Tobin) is to the point, and aggregate demand, sticky wages and the co-ordination failures on these are established concepts in macro-economics. However, the record of the Great Stagflation is very much influenced by the minimum wage problem, and thus it is that kind of analysis that merits our attention here.

Amendment to the textbook model on the Phillipscurve

With respect to the textbook macro-economic model in chapter 23, we can introduce a minimum wage component in unemployment u_M that can rise gradually over the long run due to taxation. With $u = u_M + u_R$ (R from 'remainder') a possible Phillipscurve with less dampening effect of u_R is:

$$d\text{Log}[P] = d\text{Log}[P]^* - \alpha \text{Log}[(u_M + u_R) / u^*]$$

Alternatively, the two submarkets have their own curves. In both cases, it must be determined how the two submarkets develop and how they interact. The most obvious hypothesis is that high productivity labour sets the trend for the development of wages. When minimum wage unemployment rises stronger than general unemployment, then the higher educated have more scope for wage demands, and then there is an upward effect on wages and prices, even stronger so when price expectations come into play. This would show an unfavourable (upward or rightward) shift of the (aggregate) Phillipscurve.

27. Subsistence

This chapter is a bridge between the standard macro model and the elaborations on heterogeneous labour and taxes. The concept of the 'welfare state' depends upon our concept of subsistence and the elements that go into its index, and on the decisions that we take on this at the national level.

In Book III we already regarded some indexation of subsistence and taxes. Here we will refine indexation of net subsistence. Gross subsistence will be $T^{-1}[B]$ as determined by the tax system. A way to understand this chapter is that it formulates conditions for the tax system.

We already saw two possible indexation schemes for subsistence: (i) on average net income or (ii) on gross average income. The latter presumes that taxes are an indication of welfare too. This current chapter will look at another way of indexation that takes an intermediate position that might be better but that might also be needlessly complex.

We will find that if we adopt certain indexations, then we must accept some divergence in development in other terms.

Definitions

Subsistence labour forms a special group within heterogeneous labour. The group only exists if we acknowledge heterogeneity. In the labour supply density we already hypothesised a 'dromedary shape' that partly

reflected the fact that a minimum income means longer hours when the wage drops. Let us now discuss subsistence more extensively.

With man a social animal, sociobiological and social psychological causes apply in general. Precisely what these causes are, and how they apply, is a subject of serious study, see for example Aronson (1992a&b) and Wilson (1993). A regularity for mankind seems to be, vide these studies, that in certain cases people show a certain amount of care for their fellows.

This care should not be overrated. Part of it may not be empathy, but simply be precaution and an insurance for the event of personal misfortune. Also, some care obviously reduces the chance of a violent reaction of the disadvantaged. There are clear examples of empathy breakdown. For example, archeologists found ancient mines with such small shafts that these mines could only have been worked by children. We need not have illusions about working conditions, especially since it were lead mines. Nevertheless, whatever these clauses and contrary cases, 'normal conditions' seem to provoke a distinct level of care.

A strong assumption is that people have views about the whole income distribution. A simpler assumption is that people recognise a level of subsistence - which for dynamics likely implies that they adjust that subsistence to developments.

The **strong assumption** might well be that the income distribution is lognormal for *social* - and not 'economic' - reasons, and that the economic process only is oriented at directing people to a fitting place in that distribution. Economic productivity is essentially a nominal concept. It is not just the technical amount of goods per hour that can be produced, but also multiplied by the price of the product, and the price is determined in a social situation where status considerations apply. The assumption that economic agents have views about the income distribution actually need not be overly strong. As Tobin (1972, p122) states:

“(...) This observation led Keynes to his central explanation: Workers, individually and in groups, are more concerned with relative than absolute real wages.”

However, for our discussion, we narrow down the problem to the subsistence or the net minimum wage, and disregard views on the whole income distribution.

Suppose that a group recognises some subsistence. A group even might be defined by its shared views on this. For example, members of a royal family receive a certain allowance that meets their standard of living, and their standard of living helps to show that they are members of that royal family. The view oriented at the inner group thus is linked to the exclusion of others. Others should have less, precisely to distinguish them from the inner group. Being a royal family does not amount to much, if you don't have subjects. This process works all the way down, so that even people in minimum conditions flatten out differences among themselves, and seem to compare themselves to beings of assumed lesser stature. (So the simpler assumption could be used to build the strong assumption.) This discussion also clarifies that the size of the group matters. There is only room for a national subsistence floor if the simpler assumption allows for a large group. So the **simpler assumption** properly reads that groups not only define subsistence for the inner group, which is less controversial, but also, more controversial, subsistence for society as a whole.

Note that any assumption, simple or strong, is not sufficient by itself. Society also has the coordination problem of aggregating the individual preferences on national subsistence, particularly since not everyone who wants to raise the living standard of the poor has the personal means to do so. Sometimes there are legal rules. Often labour unions come in. For example in Holland collective bargaining results into industry minimum wages that are on average at least 10% higher than the legal minimum wage. More generally, subsistence is simply a social convention. A certain level of living is regarded as unacceptable, both by most employers and by the work floor in general.

One way to implement a welfare system would be to set social security at B , and leave it at that. There would be no need for a minimum wage, since employers would have to offer at least B . In practice government nevertheless create a minimum wage system too, and allow a gap between the working wage and the benefit. One of the reasons is better control, so that agents are less likely to both receive a benefit and work on the side. One of the other causes undoubtedly derives of the social forces that call for a decent minimum. [82]

Sometimes labour market regulators may be aware of the problem of the minimum wage, and may opt for a lower indexation of M even though it results into a lower B . But the effectiveness of such policies that reduce subsistence depends upon the strength of conventions in all factories and sectors.

It is useful to note that conventions are sensitive to various considerations. For example, the Dutch legal minimum wage holds for fulltimers, but does not hold for parttimers. Holland now has a lot of parttime work. [83] It is also interesting to observe that tax exemption x is established within the bureaucratic realm where there is no direct confrontation with the standard of living. For its own historical reasons, exemption is generally indexed on inflation. These matters, while also being evidence that human care for other people should not be overrated, again clarify that our subject matter is not simple in itself. Subsistence itself is very simple, especially to those who are subject to it, but it can be made complex, especially by those who govern.

Economic literature

Economic theory has long been aware of notions of empathy, vide Adam Smith (1759, 1984) on moral sentiments.

Some tax theorists suggest that the social subsistence level should be exempt from taxation. Hofstra (1975) recalls the Cohen Stuart 1889 analogy, that a bridge must hold its own weight before it can be used.

In his 1980 presidential address to the American Economic Association, Solow (1980) discussed his reading of Pigou's work, and writes:

"The last comment of Pigou's that I want to cite is especially intriguing because it is so unlike the sort of thing that his present day successors keep saying. Already in the 1933 *Theory of unemployment* he wrote: "... public opinion in a modern civilized State builds up for itself a rough estimate of what constitutes a reasonable living wage. This is derived half-consciously from a knowledge of the actual standards enjoyed by more or less 'average' workers ... Public opinion then enforces its view, failing success through social pressure, by the machinery of .. legislation" (p.255). A similar remark appears in *Lapses* [Pigou 1944 *Lapses from Full Employment*]. Such feelings about equity and fairness are obviously relevant to the setting of statutory minimum wages, and Pigou uses them that way." (p5)

Solow in the next sentences also emphasises the power of social pressure, and shows himself aware that the minimum wage need not be a special application since social pressure is abundant:

"... it is even more surprising ... that employers so rarely try to elicit wage cutting on the part of their laid-off employees, even in a buyer's market for labor. Several forces can be at work, but I think Occam's razor and common observation both suggest that a code of good behavior enforced by social pressure is one of them."

Types of indexation

We already have encountered these indexes of subsistence:

- The graphs in Book III are based on indexation on the net average wage $Net[W] = W - \tau[W]$. This presentation has been chosen since its approach is more conservative.
- Another indexation is on W itself, which thus considers taxes a part of well-being. Property (13.3e) however shows this equivalent to the first, for the Bentham tax, provided that exemption is properly indexed too.

Indexation on gross income (i.e. on W) agrees better with economic intuition, since taxes need not be a real burden, when they generate goods that enter the utility function. However, some taxes can be wasteful or can be discarded for other reasons. In the following we will take a middle position, adding and subtracting income elements. In particular:

- some public goods Q are provided by nature: breathing air and the berries in the field
- taxes go into public goods Gp , that subsistence workers get for free too (as licensed free riders)
- some government expenditure Gs may benefit only special interest groups (wastefully)
- some government expenditures Gn actually benefit the average tax payer, and should be considered part of 'net income'
- some taxes go to the support of the unemployed - $B U$ - which the unemployed cannot provide for themselves
- there is the possibility of different consumption baskets (different deflators)

- it is recognised that people at subsistence tend to have more sweat and less leisure
- tax revenue can change disproportionately with income.

Considering these element, it seems that the adoption of a detailed index would likely cause little difference with gross income indexation. Many of the additions compensate for many of the subtractions. Also, if subsistence were to lag behind average income, then it might well happen that subsistence is increased at some point anyway.

It nevertheless remains useful to develop the detailed index formally. If your interest in the subject is not very strong, you are advised to skip the remainder of this chapter. The reader who studies this section will notice that we do not achieve very much. Some of the formulas look complex, but on close inspection only say the obvious.

Formal development

We assume a 'basic insurance' setup for social security. The unemployed get a benefit of B . At higher earning levels they may have additional insurance, and be paid on top of B . But this is of no concern for our issue. Also, who is on benefit but gets a job offer, accepts this, on the penalty of losing the benefit anyhow. This means that nominal transfer payments are $NTRF = B U$. We also take $b = NTRF / LE = B u$ (redefining the symbol b - no longer the IS curve). Similarly $q = Q / LE$.

Let $g = NG / LE$ be average nominal government expenditure per worker, with $g = gn + gp + gs$. We will assume Ricardian equivalence, so that government budget deficits are regarded as part of taxes, so that there effectively is no deficit. [84] Hence $TAX = NG + NTRF$.

Then the average wage tax rate $AWTR \equiv TAX / WT = (TAX/LE) / (WT/LE) = (g + b) / W$.

☪

For the special interests we distinguish two kinds of situations.

- When average income itself is the special interest, then gs can also be regarded as net income, part of gn , and then this case is equivalent to $gs = 0$. Note that we could include gn in $Net[W]$ mathematically anyhow (but don't do this for clarity).
- Alternatively $gs \neq 0$. In particular, the average income group could be a victim of a coalition of the poor and the rich, the first getting a high B and the second a large gs . [85] In a democracy with voting population LS , a majority of $LS/2 + 1$ indeed can levy high taxes on the other $LS/2 - 1$. In that case it would not be fair to regard the tax on the average wage as beneficial to the common good. (Note that this analysis for $gs \neq 0$ is weak, since not all possible redistributive schemes are considered.)

Price indices for the average and subsistence workers are P and Pb . Real positions thus are W/P and B/Pb . Government prices are Pgn , Pgp and Pgs , giving gnr and gpr and gsr . Similarly Pq and qr .

The difference in leisure and sweat will be compensated here by choosing a suitable Real Income Ratio RIR.

☪

All together, we have:

- Net position of the average worker $Net[W] + gn + gp + q$
- Net position of the subsistence worker $B + gp + q$
- The real income ratio $RIR \equiv (B/Pb + gpr + qr) / (Net[W]/P + gnr + gpr + qr)$

The government would set RIR at a specific value, and then determine B from the other values:

$$B = Pb \{ RIR (Net[W] / P + gnr) - (1 - RIR) (gpr + qr) \} \quad (27.1)$$

☪

One thing to show is that B has a small multiplier on itself because of b . We can use the average tax rate difference Z between national and private average:

$$Z \equiv TAX / WT - T[W] / W$$

$$Z = (g + b) / W - T[W] / W$$

$$T[W] = g + b - Z W$$

$$Net[W] = W - T[W] = W + ZW - g - b = (1 + Z)W - g - b$$

Using this for the RIR:

- Net position of the average worker $(1 + Z)W - gs - b + q$
- Then $RIR \equiv (B/Pb + gpr + qr) / ((1+Z)W/P - gsr - B/Pb u + qr)$

$$B = \frac{Pb}{1+RIR u} \{RIR((1+Z)W/P - gsr) - (1-RIR)qr - gpr\} \quad (27.2)$$

The first term of (27.2) contains a small (negative) multiplier of B on itself. In full employment, $u \approx 0.02$, and with $RIR \approx 0.30$ the multiplier might easily be neglected. That is, neglected in (27.2) but not for the determination of the RIR in the base year - since Bu cannot be neglected for the base of the RIR. Since (27.1) and (27.2) are mathematically the same, using (27.1) makes that the question of neglecting that small multiplier does not arise.

cg

Another point is that the index becomes simpler if all price indices are the same. Taking $P = Pi$ gives $RIR \equiv (B + gp + q) / ((1+Z)W - gs - Bu + q)$.

cg

Let us consider a numerical example. Suppose that $gn = gs = q = 0$ and that prices are equal. Suppose also that $AWTR = TAX/WT = 0.30$. We also take the Bentham tax $T[y] = Bentham[y] = 0.5(y - B)$. Let us consider the path that subsistence is half of average income, i.e. $B/W = 1/2$, and then compute the various ratios. Then:

- Indexation on gross average income gives $B/W = 0.5$.
- Indexation on net average income gives $B/Net[W] = B/(2B - 0.5B) = 0.66$.
- Then $T[W]/W = 0.5(W - 1/2W)/W = 0.25$, and $Z \equiv 0.30 - 0.25 = 0.05$.
- Since $gn = gs = 0$, $g = gp$, and $AWTR = (gp + b)/W = gp/W + 1/2u = 0.30$. If we assume full employment $u = 0.02$, then $gp/W = 0.29$.
- Then $RIR = (B/W + gp/W) / ((1 + Z) - 0.01) = (1/2 + 0.29) / 1.04 = 0.76$.

Note that the ratio numbers 0.50, 0.66 and 0.76 by themselves mean little. In both cases B is set at half W , so the value of B is not affected. The only point is that the bases are different each time, and apparently smaller. These bases of course change again for other assumptions on the various variables and functions. Where there is no difference at a particular moment (base year), there however arise differences over time. The following tries to find out more about this.

Progression factor

One way to trace developments over time is to make plots as we did in Book III. Another approach is more formally, and a commonly used route here is the assumption of a constant macro-economic progression factor. This factor is the elasticity of tax revenue with respect to income (Koopmans (1975:103)), thus $mepf = (Y / TAX) (\partial TAX / \partial Y)$. The factor is determined by tax parameters, their indexation, the income distribution and its change. In this case, without a deficit, the progression factor applies to expenditure too, which may be taken to mean, effectively, that taxes are indexed such that tax revenue follows expenditure.

We shall take the progression factor for the average wage, which is exclusive of profits and the growth of employment. Thus our $\mu = (W/g) (\partial g / \partial W)$. We assume a nominal position, thus include price developments in government expenditure relative to the average wage. We set $gn = 0$ now, since it can be included mathematically with gp . We also assume that μ is equal for gs and gp , so that $gs = gs[0] W^\mu / W[0]^\mu$, $\mu = gs_0 W^\mu$ and $gp = gp[0] W^\mu / W[0]^\mu = gp_0 W^\mu$. Thus $g = g[0] W^\mu / W[0]^\mu$ with properly $g[0] = gp[0] + gs[0]$.

Then $\partial g / \partial W \equiv \mu g / W = \mu NG / WT$. This has the specific property that $\mu = 1$ implies that the quote $g / W = g[0] / W[0]$ is constant, and thus NG / WT is constant too. We will use this property below.

Taking W separate:

$$RIR = \frac{B/Pb + gp_0 W^\mu / Pgp + qr}{(1+Z)W/P - gs_0 W^\mu / Pgs - B/Pb u + qr} \quad \text{and hence}$$

$$B = W \frac{Pb/P}{1+RIR u} *$$

$$\left\{ RIR (1+Z - gs_0 W^{\mu-1} \frac{P}{Pgs}) - P/W (1-RIR) qr - gp_0 W^{\mu-1} \frac{P}{Pgp} \right\} \quad (27.3)$$

Inclusion of the progression factor does not cause special observations yet. If $\mu < 1$ then in the limit of W the indexation can be rather simple, especially if $Pb qr / W$ goes to zero too. If $\mu > 1$, then there could be a point where the markup on W is zero, or subsistence would have to be zero - which would suggest an unrealistic tax function. The progression factor becomes more useful if we regard special cases.

Special cases

Definition: A (democratic) state is "Madisonian", iff $gs = 0$. James Madison remarked that a proper democracy with a majority rule actually safeguards the interests of the minorities.

Definition: A "real welfare state" aspires at a constant RIR and takes $q = 0$. The idea on the latter is that breathing air is prerequisite to utility and no source of it. The berries in the field are owned by someone, and no longer free. (If they were free, then Coase's Theorem shows that they could be counted as part of income, and hence they would no longer be free for all practical purposes.)

Definition: A "pragmatic" real welfare state sets $u = 0$ in the determination of the benefit level and RIR. The factor $B u$ really does not amount to much.

Definition: "Uniform prices" means $P = Pb = Pgs = Pgb = Pgn = Pq$. If this happens then one price index P suffices.

Theorem B1: In a pragmatic Madisonian real welfare state with Ricardian equivalence and uniform prices, (i)

$$RIR = (B + g) / ((1 + Z) W) \quad (\text{base year})$$

and

$$B = W((1 + Z) RIR - NG/WT) \quad (\text{henceforth})$$

(ii) If RIR is constant, then: (1) A constant quote for government layouts (or progression factor $\mu = 1$) only allows for some variation in B/W by variation in the average tax rate difference Z . (2) If Z is constant, then B is fully indexed on W .

Proof:

(i) For the base year: substitute the results of the definitions in the RIR (vide (27.2)), note that the prices cancel and that $g = gp$. Then find the base year result as stated, and then use $(NG/WT) W = g$ to get the annual expression.

(ii) For (1), we use $\mu = 1 \Leftrightarrow NG/WT = g[0] / W[0]$ from above. Then simply rework the equation for a constant.

For (2), if NG/WT and Z are constant, write $B = c W$. Then $\partial B / \partial W = c = B/W$. Hence $\partial \text{Log}[B] = \partial \text{Log}[W]$.

Q.E.D.

Theorem B2: In a pragmatic Madisonian real welfare state with Ricardian equivalence and uniform prices, net income indexation is only feasible for special tax functions.

Proof: To see what happens if B is indexed on $Net[W]$, write $n = \partial Net[W] / \partial W$. Note that $1 - n$ is the marginal tax rate for W , and that $\partial B / \partial W = \partial B / \partial Net[W] n$.

With $B = W(1 + Z) RIR - g$ (theorem B1) use $W(1 + Z) = (Net[W] + g + b)$ and get:

$$B = RIR Net[W] - (1 - RIR) g + RIR b$$

Note that $b \neq 0$, since we have set $u = 0$ only in the determination of the RIR. Then:

$$\begin{aligned}\partial B / \partial W &= \partial (RIR \text{Net}[W] - (1 - RIR) g + RIR b) / \partial W \\ &= RIR n - (1 - RIR) \mu g / W + RIR u \partial B / \partial W \\ \partial B / \partial W &= (RIR n - (1 - RIR) \mu g / W) / (1 - RIR u)\end{aligned}$$

We again find a small multiplier. Dividing by n gives the transform to $\text{Net}[W]$:

$$\begin{aligned}\partial B / \partial \text{Net}[W] &= (RIR - (1 - RIR) \mu NG / WT / n) / (1 - RIR u) \\ \partial \text{Log} B / \partial \text{Log}[\text{Net}[W]] &= \text{Net}[W] / B (RIR - (1 - RIR) \mu g / W / n) / (1 - RIR u)\end{aligned}$$

Indexation on $\text{Net}[W]$ means that the left hand side is 1, and that $\text{Net}[W] / B$ is some constant. Setting net income ratio $B / \text{Net}[W] = \text{NIR}[0]$:

$$\text{NIR}[0] = (RIR - (1 - RIR) \mu g / W / n) / (1 - RIR u)$$

We want to find the conditions under which RIR is a constant (for the 'real welfare state'). Solving above expression for RIR gives:

$$RIR = \frac{\mu g / W + n \text{NIR}[0]}{\mu g / W + n (1 + u \text{NIR}[0])}$$

A special case has $\mu = 1$ and thus $NG/WT = g / W$ constant, and n constant, i.e. for the Bentham tax function $n = 1 - r$. This is only feasible if u is constant too. There is a more general class when $\mu g / W / n$ is some constant, but u must be constant here too. In other cases the RIR is implicitly adjusted to make $B / \text{Net}[W]$ constant. But nonconstancy of the RIR conflicts with above definition of the welfare state (that must have constant RIR).

Q.E.D.

28. Phillipscurve

This chapter deals with the confrontation of labour supply with labour demand, and the equilibrating dynamics. With high unemployment, wage growth may be reduced. With low unemployment there may be ample room for wage demands, and wage inflation can rise.

Chapter 25 already provided a background discussion on the Phillipscurve, and for example pointed to Graaflands c.s. derivation from a Nash maximising framework. In this chapter we take that possible development for granted, and concentrate on concepts: what variables are relevant for a Phillipscurve, and how do we characterise equilibrium.

It appears to be useful to first develop some concepts of dynamics.

Concepts

The Phillipscurve reflects the hypothesis that (wage) inflation is influenced by unemployment. Of course other factors are important too, such as (price, wage) expectations and forward shifting of taxes. Whatever other influences, the key notion of the Phillipscurve remains the influence of the employment situation. Wage adjustment now is considered to be the dependent variable while normally the price would be the independent variable. Wage adjustment will consist of a shift along a curve and a shift of the curve, and for both we still use the term 'Phillipscurve'.

As remarked, labour supply is relatively fixed. Utility maximisation and rational calculation will primarily be directed at finding a competitive wage (competition not necessarily meaning *full* competition - as we e.g. referred to a Nash equilibrium). An individual who sets his wages too high will become unemployed. Even the probability of becoming unemployed will have a sobering effect. Given this framework, the model must concern a dynamic process of unemployment (threats) and wage adjustment.

First consider a homogeneous market with price level P . Price

adjustment towards the market clearing equilibrium price P° depends upon excess demand, and since excess demand is determined by the price level, we get a differential equation:

$$P' = dP / dt = f [D[P] - S[P]] = f^\circ [P^\circ - P]$$

Note that the choice of ‘excess demand’ as the explanatory variable is arbitrary. We might as well take excess supply, or allow demand and supply to react differently, or have a different sensitivity to prices and quantities. Similarly, we can also take the quantity as the explained variable. And we can also formulate the equation in expectational variables.

Some authors hold that above relationship for price dynamics is an hypothesis that needs further clarification. I think that this is too cautious. Admittedly, it might be too simple to only presume that agents know that they are involved in a market ‘tatonnement’ process, and further explanations can be helpful. Agents have various tools available, and the choice of offering and accepting prices and quantities can be described, using an optimising framework. The speed of adjustment in markets depends upon characteristics like the size of the market, the historical relationships between agents, ‘menu costs’, and the like. It is also useful to distinguish ‘normal’ periods and ‘shocks’. However, the level of detail depends upon the use of the model, and above relationship suffices our goal.

cg

Inflation is the rate of growth of prices, i.e. $p = d\text{Log}[P] / dt = P' / P$. The change in inflation is $dp / dt = P'' / P - (P')^2 / P^2$ in terms of the original price level. Acceleration of inflation would be $d^2 p / dt^2$.

We need to clarify a term. The economic literature uses the term “Non-Accelerating-Inflation Rate of Unemployment” (NAIRU) for that rate of unemployment that causes $dp / dt = 0$.

This term thus should be “non-accelerating prices” or “non-changing, or constant, inflation”.

Secondly, it appears that the formulation in terms of differentials is less useful for practical economics than the formulation in differences. So we will use differences instead. Inflation then is $p = (P / P[-1] - 1)$ (often expressed as a percentage).

Thirdly, we regard wage inflation rather than product price inflation, thus $w = (W / W[-1] - 1)$. Please note that we use the different letter font w for wage inflation, since we use w for the level variable in densities like $e[w]$. Properly we should subtract productivity growth, but for our purposes we may now assume that productivity is constant. Note that wage inflation can be different from price inflation, since productivity is determined in terms of the output price, and output will not be only consumer goods but also exports, investments and intermediates.

We will use the term “Constant Inflation Rate of Unemployment” (CIRU) for that rate of unemployment that causes $p = p[-1]$. Similarly, the Constant Wage Inflation Rate of Unemployment (CWIRU) gives that rate of unemployment that causes $w = w[-1]$. [86]

cg

We use the term “Equilibrium Rate of Unemployment” (ERU) for that rate of unemployment that causes wages to adjust to their equilibrating or market clearing level $w^\circ = (W^\circ / W[-1] - 1)$. The CWIRU might be a special kind of ERU. The idea is that once inflation has been constant for a long while, you start expecting it. Table 8 contains an overview of the concepts.

Table 8: Concepts for wage inflation w

		<i>REH: white noise surprise $w = w^* + \varepsilon$</i>	<i>Non-REH: other surprises</i>
<i>CWIRU</i> $w = w[-1]$	$uf = ERU[FE]$	CWIRU = ERU[REH] = ERU[FE]	Maybe temporarily, but impossible in the long run
	<i>Other</i>	CWIRU = ERU[REH]	Maybe temporarily, but

			impossible in the long run
Non-CWIRU $w \neq w[-1]$	$uf = ERU[FE]$	$w^\circ = h[uf, u[-1]] + \dots$ if expected ...	$w^\circ = h[uf, u[-1]] + \dots$
	Other	ERU[REH]	No equilibrium in any of these senses

Note: We use $^\circ$ to indicate market clearing equilibrium, and $*$ or $E[.]$ for expectations and expectational equilibrium. We use \cdot when we allow for either.

We can recognise at least two equilibria:

- FE: full employment, when all labour resources are used except for friction unemployment $uf = ERU[FE]$. Normally w° is a direct function of uf , for example $w^\circ = h[uf, u[-1]] + d\text{Log}[Money]$. It may be that people's expectations on nominal wages are not fulfilled, so that $w^\circ \neq E[w] \neq w$. A FE policy is only successful if $w = w^\circ$ and $u = uf$.
- REH: the rational expectations equilibrium, when expectations are fulfilled except for random error. Thus $w^* = E[w]$, it so develops that $w = w^* + \varepsilon$, and this optimality is only in terms of expectations. In ERU[REH] unemployment may be far from $uf = ERU[FE]$. The situation can be stable if people only regard the price signals (and whatever else is in the specification), and are satisfied as long as their expectations are fulfilled.

A homogeneous Phillipscurve

A linear format

Let the change in wage inflation be sensitive to wages with degree α and sensitive to quantities with a function $f[u]$, with u the rate of unemployment. The following gives a rich (wage) Phillipscurve that contains not only the rate of unemployment but also past and (forward looking) equilibrating wage inflation. [87]

$$w - w[-1] = \alpha (w^* - w[-1]) + f[u] \quad (28.1)$$

$$w = \alpha w^* + (1 - \alpha) w[-1] + f[u] \quad (28.2)$$

Equilibria

Generally for the CWIRU from (28.1):

$$0 = \alpha (w^* - w[-1]) + f[\text{CWIRU}]$$

$$\text{CWIRU} = f^{-1}[-\alpha (w^* - w[-1])]$$

According to the Rational Expectations Hypothesis (REH): $w^* = E[w] = w$. Then from (28.2) - interpreting REH as 'model consistency':

$$w^* = E[w] = \alpha w^* + (1 - \alpha) w[-1] + f[E[u]]$$

$$w^* = w[-1] + f[E[u]] / (1 - \alpha) \quad (28.3)$$

We can also prove that $u = E[u]$ and then define $E[u] = ERU[REH]$. [88] Hence: [89]

$$w = w[-1] + f[E[u]] / (1 - \alpha)$$

$$E[u] = f^{-1}[(1 - \alpha)(w - w[-1])] = u$$

In this specification, the CWIRU can be ERU[REH], and ERU[REH] can be CWIRU. Namely, when $w^* = w[-1]$, or when expectational equilibrium is associated with constant wage inflation. Some ERU[REH] however can exist with nonconstant inflation that is not CWIRU. Since equilibrium wage inflation w^* is determined also by other factors such as money, the ERU need not be constant. Even when $u = ERU[REH]$ for each separate year, then w might still have an erratic development over the years. Similarly, the CWIRU can be an ERU[REH], but need not be. It can even be that $w = E[w]$ but expectations are not REH - since the error is not

white noise.

For full employment, policy is successful, if and only if $u = uf$ and $w = w^*$, so that:

$$\text{ERU[FE]} = uf = f^{-1}[(1 - \alpha)(w - w[-1])] \quad (28.4)$$

This equation has the same format as ERU[REH]. It follows that uf can be REH, and REH could be uf . However, they need not be, since, though we have used the same symbol f , in practice there can be different functions and also additional variables depending upon the FE or REH assumption. [90]

Similarly, with this specification there might be constancy, and of course there might be not. And as said, constancy might not be the real issue, as small fluctuations in a stable range might be acceptable too. [91]

Selection of $f[u]$

In the selection of $f[u]$ we have to take account of the fact that u can shift as a result of the minimum wage. Workers below the minimum wage are not relevant for the labour market, and do not exert a downward pressure on wage inflation. Above we saw that $u = un + um$. Let $fu[un]$ give the fundamental *nonshifted* relationship for that part of unemployment that still affects the development of wages. Conforming to empirical regularity:

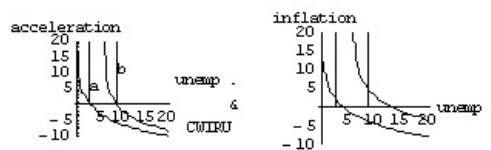
$$fu[un] = \beta - \gamma \text{Log}[un + \delta]$$

Here β is a parameter for horizontal adjustment, γ gives the slope, and δ is a constant shift in u . Note that $fu[un]$ may be very sensitive to low values of un and δ , since the logarithm from 0 till 1 is very steep, and un commonly is measured in percentages and thus covers that range. Now, for $f[u]$, an endogenous shift in u then can be included by:

$$f[u] = f[un + um] = fu[un] = fu[u - um] = \beta - \gamma \text{Log}[u - um + \delta]$$

Note that $f[u]$ here is also acceleration, since $1/(1-\alpha)$ disappears in β and γ . Figure 24 gives two regimes, plotted for both the $f[u]$ in the left part and the Phillipscurve in the right part. Parameters are $\beta = \gamma = 5$, $\delta = 0$, and $um = 0$ [case (a)] respectively $um = 6$ [case (b)]. It is assumed that $w^* = w[-1] = 2$ respectively 5, so that the minimum wage unemployment of 0 associates with an equilibrium wage inflation path of 2, while the high minimum wage unemployment of 6 associates with a high wage inflation path of 5. Since $w^* = w[-1]$ the CWIRU's can be found when $f[u] = 0$, and these result in values of 2.7 and 8.7 (= 2.7 + 6).

Figure 24: Dynamics: unemployment and inflation



Given the assumption of $w^* = w[-1]$ it also follows that the Phillipscurves are just horizontal translations of the $f[u]$, and one can see the values of 2, respectively 5, for the assumed wage inflations at the CWIRU's.

The cases (a) and (b) in Figure 24 reflect the developments in the OECD in the 1950-2005 period. Case (a) gives the situation somewhat like the 1950s. The trade-off of inflation and unemployment then took place at low rates along the long drawn line. The trade-off of wage (price) acceleration and unemployment gives the CWIRU. At that point price acceleration is zero, and inflation remains at a low and constant value. Case (b) gives the situation of stagflation, where both the CWIRU and the trade-off-process around it have worsened. The move from (a) to (b) can be called 'stagflationary'. In the 1960s and 1970s authorities targetted for low unemployment at the cost of rising and eventually high inflation. In the 1980s and 1990s the authorities targetted against inflation and accepted high unemployment.

The short term Phillipscurve concerns the direct trade-off of unemployment and (wage) inflation and is given by the long drawn

curves. This trade-off has only limited explanatory value. Nowadays unemployment is concentrated at the low income section of the income distribution, and it is not likely that this can be battled with high wage inflation. This phenomenon is rather explained by the shift of the CWIRU or the long run relationships between equilibrium unemployment and wage acceleration, which are given in the left diagram.

It is useful to note:

- The CWIRU need not be constant. It could be if e.g. the relation indeed is linear and if the coefficients are fixed. But neither need be the case. The CWIRU in all likelihood is itself a variable that traces out a path. (Which is another reason why the name 'natural rate' is unfortunate.)
- There is a movement of the curve and a movement along the curve.
- The movement of the curve is not determined by the labour market alone. Policy makers may neglect labour market measures, and may opt for high inflation (1970s) or for high interest rates (1980/90s) to fight minimum wage unemployment that is not affected by these.

On expectations

We may recall the 1995 Nobel Prize for Robert Lucas. The Swedish Academy put the following text on the internet:

"The change in our understanding of the so-called Phillips curve is an excellent example of Lucas's contributions. The Phillips curve displays a positive relation between inflation and employment. In the late 1960s, there was considerable empirical support for the Phillips curve; it was regarded as one of the more stable relations in economics. It was interpreted as an option for government authorities to increase employment by pursuing an expansionary policy which raises inflation. Milton Friedman and Edmund Phelps criticized this interpretation and claimed that the expectations of the general public would adjust to higher inflation and preclude a lasting increase in employment: Only the short-run Phillips curve is sloping, whereas the long-run curve is vertical. This criticism was not quite convincing, however, because Friedman and Phelps assumed adaptive expectations. Such expectations do in fact imply a permanent rise in employment if inflation is allowed to increase over time. In a study published in 1972, Lucas used the rational expectations hypothesis to provide the first theoretically satisfactory explanation for why the Phillips curve could be sloping in the short run but vertical in the long run. In other words, regardless of how it is pursued, stabilization policy cannot systematically affect long-run employment. Lucas formulated an ingenious theoretical model which generates time series such that inflation and employment indeed seem to be positively correlated. A statistician who studies these time series might easily conclude that employment could be increased by implementing an expansionary economic policy. Nevertheless, Lucas demonstrated that any endeavor, based on such policy, to exploit the Phillips curve and permanently increase employment would be futile and only give rise to higher inflation. This is because agents in the model adjust their expectations and hence price and wage formation to the new, expected policy. Experience during the 1970s and 1980s has shown that higher inflation does not appear to bring about a permanent increase in employment. This insight into the long-run effects of stabilization policy has become a commonly accepted view; it is now the foundation for monetary policy in a number of countries in their efforts to achieve and maintain a low and stable inflation rate."

The Academy is a bit too assertive. The Phillipscurve need not be vertical in the long run. It may well be that there is no fixed solution, and that the long run gives a non-converging movement. Also Phelps (1994) has reminded us that the CWIRU (in his words the NAIRU or 'natural rate') need not be constant.

Secondly, there can be other causes than expectations, and these might be more important for understanding the present situation. One important cause is the mechanism of the minimum wage. Hence the models used by Lucas and his predecessors need not be the relevant models for explaining the empirical shifts in the Phillipscurves and their CWIRU's.

Heterogeneous Phillipscurves

If labour is heterogeneous, then utility maximisation and rational calculation are not only directed at demanding a competitive wage, but they are also directed at selecting the kind of submarket (and its associated wage). This complicates the situation. Can we say that a dentist is 'unemployed' in the market for farmers? Or closer linked, that an assistant professor is 'unemployed' in the market for professors? However, we may note that an individual who sets his wages too high will become unemployed in any submarket. This causes an intuition that the selection of submarkets can still be represented by wage schedules.

There will be more equilibrating forces than wages only, e.g. education or migration, but it can be reasonable to concentrate on wages.

With heterogeneity, the unemployment that is relevant for a submarket will have effects on the evolution of the wage in that submarket. Aggregating, however, we get an effect of macro unemployment on the average wage. Hence above simple relationship can be retained, but its interpretation changes from homogeneity to aggregation of heterogeneous submarkets.

More factors that cause a shift

Above we used um to show how the Phillipscurve can shift. Note that this in fact has only been a didactic procedure. I wanted you to understand the formulas, and it appeared very instructive to draw graphs of shifting Phillipscurves. However, when there are LS homogeneous labourers, we have some difficulty explaining why $(1 - u) LS$ could work and $u LS$ could not, even though they essentially are the same. Hence minimum wage unemployment and the shift of the Phillipscurve due to it, properly belong to the world of heterogeneous labour.

We here can extend the list of factors that can cause a shift in the aggregate Phillipscurve:

- The match of demand and supply above the minimum wage may cause separate problems. We will discuss the issue of *crowding out on the labour market* below.
- Vacancies will strengthen the position of employees and their unions. Employers may nevertheless wait with filling vacancies in order to find better opportunities later.
- There is 'forward shifting' of the tax burden $\pi[w] / w$ from employees to employers (and then into product prices).
- The Labour Cost Quotes w / y may not just affect the equilibrating wage (or expectations) but may as well cause a shift.
- Poverty - see below.

We would basically model all submarkets - with minimum wage unemployment of course only occurring at the bottom. However, let us first look at the macro level only. Let us be the summary shift variable inclusive of all factors including um . Let usr be the summary shift variable exclusive of um . Let v the rate of vacancies, TAX/WT the tax burden. Let $History$ be the history of all variables. Then redefine $f[u]$:

$$us = us[u, v, TAX/WT, WT/Y, History] = um + usr[u, v, TAX/WT, WT/Y, History]$$

$$f[u] = fu[u - us] = \beta - \gamma \text{Log}[u - us + \delta]$$

Crowding out

A crucial topic is crowding out on the labour market. Highly productive labour can replace lowly productive labour more easily than conversely, and this has effect on wage claims. This might be something like a continuous version of the insider-outsider theory.

Unemployment among the higher skilled is not large. The analysis here is that this is caused by crowding out on the labour market. When potentially higher productive people face the choice between unemployment and a comparatively lower paid job, they choose the latter (notably when they are tired of waiting or when the benefit runs out). They thereby "take the places" of others - who repeat the process to others below. The initial set-back in pay level tends to translate into demand for pay rises. Who crowds out, has a stake in trying for pay rises. A lot of crowding out will cause a mood for inflation. Who have been crowded out towards unemployment, have some incentive not to inflate, but have little countervailing power against the general mood for inflation.

Figure 23 already presented the stylized fact for labour demand and supply, i.e. that vacancies tend to occur at higher income and unemployment at lower income. [92]

There is a meaningful aggregation of vacancies and unemployment by subcategory of low and high productivity workers, giving V_l, V_h, U_l and U_h . When vacancies are asymmetrically relevant only for the higher incomes ($V \sim V_h, V_l \sim 0$), and when there are always vacancies for higher incomes due to crowding out ($V_h \gg 0$), then V is not that important. However, V may become important again when V_l is made nonzero by proper tax policies. If low productivity labour has a stronger position in the labour market, then the risk of unemployment is spread

more evenly, and trend-setting high productivity labour will be cautious about wage claims. High values of Vl and Uh , i.e. vacancies for the low productivity group and unemployment for the highly productive group, have the largest wage checking effect. High Vl and Uh make it difficult for the trend setting higher productive workers to shift the risk of unemployment to the lesser productive workers. We will not formally develop this point.

Crowding out on the labour market typically refocusses the policy coordination problem to the lower end of the market. This phenomenon tends to reduce the problem and our vocabulary in these pages to social subsistence, tax exemption and (legal) minimum wage.

Poverty

A crucial difference between the United States and Europe is that the US accept more poverty (e.g. by low controls on its minimum wage laws), while Europe chooses high minimum wages and benefits to raise standards of living. The shift of the Phillipscurve thus is more obvious and stronger in Europe than in the US. In the US the working poor still work, so unemployment is lower, and the shift of the Phillipscurve is less strong. Sometimes the argument stops here. It remains a topic of consideration though whether more than just this can be said about poverty.

Poverty affects productivity directly. A clear case is medical care. With less medical care, there are longer periods of illness, and more chances for complications of a less well attended illness. Employers are less likely to hire less healthy persons.

Poverty affects personal appearance. A shabbily dressed and badly groomed individual has less chance of employment than a person of average appearance.

Poverty affects social attitudes. Social segregation and cultural differences reduce the chances of employment.

Poverty affects capacities. Rich people need not study much, need not read many papers, and may only watch soap operas. They are rich, and can enjoy themselves. But those of the rich who would like to study, read, watch serious tv programs, and drive out to educational events, have the means to do so. Those who are not that rich, and those who have to study to maintain a higher living standard, may work and still earn enough to enable them to study. Those of the poor section that might want to do the same, do not have those means.

One aspect of US poverty is crime. Poverty does not actually force people to crime, as some people demonstrate, but for many it in fact appears to be very seductive. Jacobs (1996:573), referring to Freeman (1996:25-42), explains that about 2% of US males is in prison, about the same rate as long term unemployment in Germany. Taking account of women, the overall US imprisonment rate is about 1.2%. The highest rate of European imprisonment is for the UK, with 0.3%. So for the US we might add 0.9% to the unemployment rate.

Also, additional 5% of US males is on conditional leave etcetera from the prison system. More have a criminal record. Those points reduce the chance for employment.

Some of these points, like imprisonment, work directly as a minimum wage. Some other points rather affect the employment or earnings distribution, and cause a structural rise of Ul .

The submarket Phillipscurves

Here, for simplicity, we take the wage level w instead of wage inflation. The rates of change can be found by comparing to $w[-1]$.

Wage w , a continuous vector for each market, depends upon the power position of employers and employees, which is determined, amongst others, by the relative situation of unemployment versus vacancies. Since unemployment and vacancies have been expressed above as functions of w we solve w as a fixed point. We also add the equilibrating w^* (or expectations $E[w]$) that are a function of product y , the tax burden for forward shifting, the labour cost quote, macro variables and the history of the variables. The submarkets Phillipscurves can include influences of other submarkets and general developments pertaining to all markets. A macro-economic hypothesis is that the development within markets is not merely influenced but even *dominated by general events*. The relationships are clearly dynamic, and we thus read all variables as time dependent.

$$w[y, T, Macro] = w[w^*[y], ud[w], vd[w], T[w] / w, w / y, Macro, History]$$

Note that modern large models depend upon convergence techniques, and that the computation of fixed points can be included into convergence in general (though it would be computationally burdensome).

Shifting back

The stylized facts can be summarized as: [93]

- In the 1950-1970 period, welfare states generally had a *high* tax exemption level and full employment.
- In the 1970-2005 period welfare states generally had a *low* tax exemption level. To ensure a decent standard of living, required gross income then rose and exceeded productivity in the low end of the market, generating unemployment, while shifting the Phillips curve and reducing its sensitivity.
- Even when the statutory tax system has a low exemption level, then subsidies for the lowly productive keep them in work. And subsidies can be at the firm or state level. This is crucial for the Japanese and Swedish experiences, see e.g. Aoki (1990) and Standing (1990). Note that, in a *reduced form*, subsidies turn up as 'system-wide exemption'. A subsidy is no 'real' subsidy if it compensates for wrong taxes.

Measures to block crowding out boil down to giving the low productivity group some guarantee for work at decent income. Such guarantees can be collective/semi-private arrangements of the Swedish/Japanese type. For the more common mixed economies, the guarantee is market-conforming, and notably consists of tax exemption.

29. Tax basics

Taxes are relevant for the discussion of stagflation at least for the following reasons:

- (1) Taxes divert income and thus affect aggregate demand, especially when tax revenues go to benefits and consumption instead of saving and investments.
- (2) Taxes are thought to cause forward shifting, i.e. that taxes are shifted into wage costs, which then may cause inflation.
- (3) Taxes reduce net wages, and might affect the supply of labour. Statutory marginal rates are thought to have disincentive effects.
- (4) If exemption is lower than subsistence, then a higher minimum wage is required. Differential indexation widens the gap.

In the following we will first discuss the relation of social insurance premiums to the *economic* concept of a tax. Then we regard the common tax structure of OECD countries, where the structure concerns both a statute and the dynamic adjustment policy. We introduce a nonlinear tax function and rules on indexation that captures this structure. We then show the effects of differential indexation, and present our new analysis on marginal rates.

Tax dynamics can be split into two components: the dynamics of the short run - where a local temporal equilibrium is attained using the calculations on the marginals - and the dynamics of the long run - where the locus of possible equilibrium points is shifted by long run effects on the levels of the variables. Both components appear to be equally important for our understanding of the subject. The observations on the long run can be usefully discussed in conjunction with the theoretical developments.

Taxes and premiums

In our discussion we will take premiums as part of taxes in so far as it is economically relevant to do so. This may need some clarification.

Premiums for old age, sickness, disability, unemployment and the like are often regarded as insurances, and studied separately. In the practical situation of empirical economies these provisions are often indeed administered by separate institutions called 'insurance companies'. And there indeed exists the possibility to apply the mathematics and economics of insurance to these topics. However, that these provisions are called 'insurance' should not cause us to regard them as only such. Part of these so-called insurances are provisions for the efficiency of the labour market.

To understand this, let us take the case of a low wage labourer. Suppose that he would have to pay such an amount of premiums, for only

a limited package of insurance, that his net wage would make him eligible for benefits, or his gross wage would make him unemployed so that he also gets a benefit. Once he relies on benefits, the mentioned insurances are provided for him for free.

This thus shows the structural identity of the problem of exemption in 'insurance' with the problem of exemption in taxation. Hence, on economic grounds, insurances here are lumped together with taxes, in so far as they are provisions for the well functioning of the labour market.

Note too that governments would be wise to follow a 'basic insurance policy' which holds that workers can be insured up to a basic level but without payment of premiums. This reminds of the 'basic income argument', but only applies to the mentioned premiums. Similarly poor people exempt from taxation receive public goods, without paying for them.

Common structure

Most developed nations have nonproportional taxes, i.e. tax codes with an exemption at the threshold and then a (rising) statutory marginal rate. The latter parameters in fact concern the intercept and the slope of the tax function. There is also a remarkable similarity in the policy regarding these two parameters (or sets of parameters), see OECD (1986):

- The policy feature concerning the intercept or **exemption**.
Exemption generally is low, also with respect to social insurance.
Tax parameters, and notably exemption, are generally indexed on inflation. Since incomes tend to grow faster than inflation, exemption lags behind incomes. There is a deliberate tax creep - measured by the 'macroeconomic progression factor'.
- The policy feature concerning the slope or the **statutory marginal rate**.
Both in theory and public discussion there is a consideration that high marginal rates have disincentive effects. This has resulted in the policy objective to reduce marginal rates. One way to reduce marginal rates has been the switch from income tax to VAT.

Given the common notion of **budget neutrality**, these two features in policy tend to complement each other. Budget neutrality requires that the revenue loss due to slope reduction is compensated for by other proceeds. These other proceeds will often come from the tax creep and the reduction of exemption. At least, it is often thought that the reduction of exemption generates additional revenue. This, however, turns out to be a wrong assumption.

Nonlinear tax function

Book III introduced the Bentham tax function $Bentham[y] = r(y - x)$ with exemption x and marginal rate r . This function is linear but already results into nonproportional taxes. Governments in practice have nonlinear tax schemes that give stronger nonproportionality, reflecting political views on the redistribution of income.

Strong nonproportionality has a special effect. Since taxes in the 1960s were more nonproportional than nowadays, the tax structure combined with the lognormal shape of the employment function, and generated strong nonlinear effects and a strong upswing of the CWIRU in the early phase of stagflation.

It is useful to introduce a flexible tax function with one more parameter than Bentham's function to incorporate some curvature. This new function allows us to give concrete examples whenever nonlinearity is useful. For clarity, it appears that this function can approximate the actual Dutch tax situation. The tax function is:

$$Tax[y] = r(y - x) \frac{y}{y + c} \quad (y > x)$$

with y the tax base and x the exemption or threshold, r the marginal rate in the limit when y goes to infinity, and c a curvature parameter. The ordered set of parameters is $q = (r, x, c)$. [94] We do not use Greek symbols for these parameters since we will regard them as key strategic variables. If governments would use this function for practical tax collection, they might note (1) that exemption would be determined by subsistence, (2) that r would follow from the limit marginal rate for the highest incomes, (3) so that curvature c would follow from required total revenue and the income distribution. Use of this function thus both

allows for a decent degree of nonproportionality and would reduce much of political debate about positioning of tax brackets and rates.

A person's average tax is:

$$ATR[y] = \frac{Tax[y]}{y} = r \frac{y-x}{y+c}$$

The marginal rate on the marginal dollar can be approximated as $T[y + \$1] - T[y]$ so that the common tax payer will have no problem in determining it. The proper formula itself is not too simple. At $y = x$ it starts with the value $r x / (c + x)$ and in the limit it equals r . For the whole range:

$$\frac{\partial Tax[y]}{\partial y} = r \left(1 - c \frac{x+c}{(y+c)^2}\right) \quad (29.1)$$

Note that the tax function can be transformed into a linear format consisting of income, average tax and a constant:

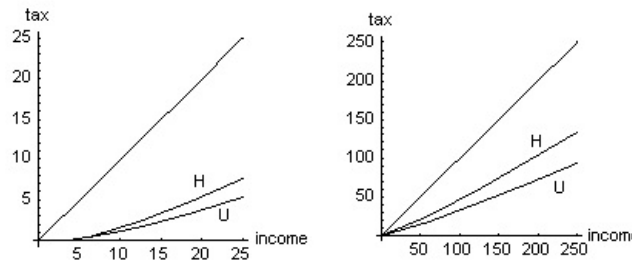
$$Tax[y] = r.y - r.x - c.Tax[y] / y = a1.y + a2 + a3.ATR[y]$$

Colignatus (1992) used this relation for a simple linear least square estimation that neglects the error on the average on the right hand side, using 1988 Dutch data for 12 selected income levels. The result was:

$$Holland\ 88[y] = 0.572(y - 2,674) \frac{y}{y+17,554} \quad (\text{in 1988 \$})$$

The equation can be plotted for two ranges, (H1) for a low income range till \$25 thousand to show the curvature, and (H2) for a wider income range till \$250 thousand to show the straightness in the limit. In a plot, the 45-degree line is usefully added to allow visualisation of net income. Since the Dutch estimate has a high marginal rate in the limit of 57.2 %, we add US-alike lines (U1) and (U2) with a $r = 40\%$ limit. The two ranges are plotted in Figure 25.

Figure 25: Different tax regimes 1988 (\$1000)
(H) Holland, (U) US-alike



Exemption

Heterogeneous income

The nonproportional tax clearly becomes important when incomes differ, i.e. labour is heterogeneous in terms of productivity, labour costs and income. Lower income earners are affected disproportionately by the exemption level, not merely in terms of the income distribution but also in terms of their competitive position versus higher earners.

In Book III, equation (13.1a) already shows how the minimum wage consists of two elements. For above tax function:

$$M = B + Tax[M] = B + r(M - x) \frac{M}{M+c}$$

Analytically solving for the minimum wage gives, due to the nonlinear curvature, two solutions for $M[B, r, x, c]$:

$$(1) \ M = \frac{B - c - r x + \sqrt{(B - c - r x)^2 + 4 B c (1 - r)}}{2(1 - r)}$$

$$(2) M = \frac{B - c - rx - \sqrt{(B - c - rx)^2 + 4Bc(1-r)}}{2(1-r)}$$

Note that the denominators are positive, so that the first solution is more adequate. If exemption is taken at $x = B$, then these two solutions degenerate into $M \rightarrow B$ and $M \rightarrow -c/(1-r)$.

Figure 9 and Figure 8 in Book III plot the tax situation and the effect of M and B for curvature $c = 0$ (in the considered range), and for Holland 2002.

Indexation of exemption

We already mentioned the OECD (1986) report that taxes generally are indexed on inflation. This indexation though is not consistent over time. The Economist (1991:45-46) reported:

“the most intriguing proposal now doing the rounds in Congress (...) is to increase the personal tax exemption (the amount by which taxable income is reduced for each person in a household). In 1948 the exemption was set at \$600 a person; in 1990 it was \$2050. According to recent evidence before the House of Representatives select committee on children and the family, had the exemption been indexed from 1948 it would now be worth \$7800.”

The Dutch data had already been given in Table 4. Indexation on inflation need not be optimal. We already looked at indexation of subsistence, and it might be wise to index taxes on the same base as gross income, as suggested by property (13.3e) and the discussion on subsistence in chapter 27.

A note on partners

Statutory taxes generally take account of the household situation. Sometimes tax terminologies suggest an individual treatment. Regard for example the Dutch tax code. This states that partners can ‘transfer their exemption’ to the money earning partner. You may check that Table 4 on the Dutch situation indeed shows an exemption for partners, in the 1997 column, that is double the exemption for singles. The situation in 2002 is a bit more complex due to an EITC.

Note, though, that the Dutch minimum wage roughly is set at the income level for partners. Singles have less net income since their exemption is lower, but they are not allowed to work at a lower gross minimum wage that might be feasible, with the same net income by assigning them the same exemption as for couples. The Dutch concoction of ‘exemption transfer’ in fact is extremely silly. It is even more surprising that it has been introduced while all Dutch tax specialists kept a straight face. [95] The concoction also complicates the Dutch policy debate, since a proposal to raise exemption to subsistence now associates, in Dutch minds, with exemption for couples of *double* subsistence (which is exorbitant).

The best tax format would start with exemption at subsistence for singles.

Secondly, for partners with a single earner, a measure of ‘individual taxation’ can be introduced in the following manner. The basic ideas are:

- Home maintenance produces a product, this product is real income, and income should be taxed. However, part of home maintenance also can be part of subsistence.
- We may allow for a degree of spillover ϕ of income from one partner to the other. This is the public good argument, i.e. that more people can benefit while the cost is constant.
- Not all interaction is just spillover. Part of the interaction concerns an economic transaction. While the single person has to work for his home maintenance, he also buys it from himself. The single earner out partner buys it from the home partner. Revenue from this transaction should be taxable, i.e. on the side of the person that receives the payment.

Let y_h stand for the income of the home partner, and y_o for the income of the out partner. Let us use the Bentham tax, and apply it individually. Assign virtual income H to parttime home maintenance activities - and we are ignorant about the required hours. Let parttime virtual home maintenance income be part of exemption $x = B' = B + H$, with B money subsistence or the net minimum wage on the market. The situation is neutral for a single person, who’s exemption is $x = (B + H)$ while his income is $y + H$. The couple however is treated as follows:

- The out partner earns on the market y , buys Ho from the home partner, and

has spillover ϕyh of the income of the home partner. Buying something does not add to income however. Income thus is $y_o = (y + \phi yh)$, and the tax thus is found to be $r(y + \phi yh - B - H)$

The home partner has own virtual income Hh , earns income Ho from the out partner, and has spillover ϕy_o of the income of the out partner. Income thus is $yh = (Hh + Ho + \phi y_o) = (2H + \phi y_o)$ since $Ho = Hh = H$ (we used the indices only for the origins). The tax thus is $r(2H + \phi y_o - B - H) = r(H + \phi y_o - B)$

Combined income thus is $y_o + yh = (y + \phi yh) + (2H + \phi y_o)$ which consists of earned income, home production and spillover $\phi (yh + y_o)$

The equations solve as:

$$y_o = \frac{y+2\phi H}{1-\phi^2} \quad y_h = \frac{2H+\phi y}{1-\phi^2} \quad y_o+y_h = \frac{y+2H}{1-\phi}$$

In the special case that the tax authority thinks that spillover is zero, then the out partner gets a tax rebate of rH in comparison with the single person. The home partner would not have to pay taxes when H would be less than B (half a day home maintenance work would be less than a day at a minimum wage). In this case the couple has more net income than the single person, and the products of another persons work, though on a pro-person base they would have less. Conversely, if home maintenance is a highly priced good, then there could be a case to levy taxes.

If spillover is a nonzero constant, then there is an income level y where the taxable income of the home partner $H + \phi y_o - B$ will become positive. A person will have to pay taxes 'just because' he or she forms a couple with a high income earner. If spillover is nonzero but variable, then the value of ϕ that makes taxable income of the home partner exactly zero follows from $H + \phi y_o - B = 0$, and appears to be a function of income y :

$$\phi = \frac{\sqrt{y^2 + 4B^2 - 4H^2} - y}{2(B + H)}$$

If $B = 2H$ (i.e. home maintenance gets the minimum wage), then for $y = B$, $\phi = 1/3$. This means that the partner remains exempt from taxes as long as spillover is limited to a third of income. Interestingly, at that point also the taxable income of the out partner is $y_o = (B - H) / \phi = 3H$ so that he does not pay taxes either (since $x = B + H = 3H$ here).

Above relationships show that individual taxation is possible that takes into account household spillover effects. For us the issue is primarily interesting for complications about subsistence. We find that there are no great complications, and we thus will further neglect the issue of partners.

Differential indexation

With subsistence indexed on income and taxes indexed on inflation, there is differential indexation, and due to the tax structure there is a multiplier increase in the minimum wage. Required gross minimum M shows a relative rise compared to other incomes, and it rises faster than both net minimum B and the general level of income Y/LE . In Figure 10 (in Book III), when we subtract the inflation component from x , B and M , then differential indexation shows up as: x stays fixed, B moves with the income density, M moves to the right, and M , as the intersection of the subsistence and tax lines, moves up more speedily. If productivity in the lower earnings scales doesn't rise faster than general productivity or income, then ever more people grow unemployed.

For all clarity we shall prove this. This chapter uses the specific tax function (chapter 39 will give a proof independent of form). First we will show that M grows faster than B , and then we will show that M grows faster than productivity too, causing unemployment.

Let us first derive the real subsistence index rsi again, but now for the nonlinear tax. Recall the definitions of Book III. Let $B = rsi P B[0]$ with $B[0]$ subsistence in the base year. Let exemption x be adjusted for inflation with index P , then $x = P x[0]$, with $x[0]$ the exemption in the base year that now may differ from subsistence in the base year $B[0]$. Let also c be indexed on inflation as $c = P c[0]$. Let the average wage index be $W = P rwi W[0]$, with $W[0]$ the average wage in the base year. Let $h = x[0] / W[0]$ and $f = c[0] / W[0]$.

$$Net[W] = W - Tax[W] = W - r(W - x) \frac{W}{W + c} = W \left(1 - r \frac{W - x}{W + c}\right)$$

$$rsi = Net[W] / Net[W[0]] / P =$$

$$= \frac{P rwi W[0] \left(1 - r \frac{P rwi W[0] - P x[0]}{P rwi W[0] + P c[0]}\right) / P}{W[0] \left(1 - r \frac{W[0] - x[0]}{W[0] + c[0]}\right)} = rwi \frac{\left(1 - r \frac{rwi - h}{rwi + f}\right)}{\left(1 - r \frac{1 - h}{1 + f}\right)}$$

which for $f = 0$ reduces to the Bentham-*rsi* deduced in Book III. For the limit, in general, we find:

$$\lim_{rwi \rightarrow \infty} \frac{rsi}{rwi} = \frac{1 - r}{1 - r \frac{1 - h}{1 + f}}$$

which is normally below 1. Denote the denominator as F , and note that $W[0] F = Net[W[0]]$ or $F = 1 - ATR[W[0]]$.

We use these properties for the following theorem.

Theorem T.1: With $Tax[y, q]$, minimum wage setting $M = B + Tax[M]$, and balanced growth, then: if B is indexed on the net average wage and x and c on inflation only, then M rises faster than other wages, and unemployment rises.

Note: That M rises faster than other wages is not inconsistent with balanced growth. For M is only the selection of one of the proper wages that is taken to be the minimum wage.

Proof:

For all clarity, parameter r will not be indexed. Let the price level index again be P . Again $W = P rwi W[0]$. With real wage index rwi , the nominal index is $wi = P rwi$. For heterogeneous wages with wage density, we have $w = wi w[0]$ along the balanced growth path.

For a dynamic path we have starting position $B[0]$ giving $M[0]$. In the base year the minimum level is taxed at an average rate less than r , implying that $B[0] > (1 - r) M[0]$.

We also use J as the index for the real minimum wage:

$$M = P J M[0] \quad \text{i.e.} \quad J = M / (P M[0])$$

(1) We first prove that $J > rsi$ in the limit. There are two relations for B , with rsi given by the relation above:

$$\begin{aligned} B &= P rsi [rwi] B[0] \\ B &= M - Tax[M, (r, P x[0], P c[0])] \\ &= M \{1 - r(M - P x[0]) / (M + P c[0])\} \end{aligned}$$

These equations define J as an implicit function of rsi . We also see that P falls away in the right hand side:

$$\begin{aligned} B &= P rsi B[0] = M \{1 - r(M - P x[0]) / (M + P c[0])\} \\ rsi B[0] &= J M[0] \{1 - r(M[0] - x[0] / J) / (M[0] + c[0] / J)\} \end{aligned}$$

As rsi and J go to infinity, then $rsi B[0] \sim J M[0] (1 - r)$. We had $B[0] > (1 - r) M[0]$. Thus $J > rsi$.

(2) We secondly prove that $J > rwi$ in the limit. With limit ratio R :

$$R \equiv \lim_{rwi \rightarrow \infty} \frac{J}{rsi} \frac{rsi}{rwi} = \frac{B[0]}{M[0](1 - r)} \frac{1 - r}{1 - r \frac{1 - h}{1 + f}} = \frac{B[0] M[0]}{1 - r \frac{1 - h}{1 + f}} = \frac{B[0] M[0]}{Net[W[0]] / W[0]}$$

using the fact that the denominator equals F defined above. We want to prove that $R > 1$. Note, then, that $M[0] < W[0]$, and that, due to the progressive character of the tax, the ratio of net income to total income must be higher at subsistence than at the average level, so that:

$$R = B[0] / M[0] / (Net[W[0]] / W[0]) > 1$$

(3) Thirdly, we look at productivity and employment. For this theorem, the worst case to start from is full employment. When we start with full employment at $M[0]$, then $M[0]$ provides the equilibrium of supply and demand. Let the supply price (or gross income or productivity) at the minimum be $ms[0]$ and let the demand price (labour costs) at the minimum be $md[0]$. [96] Then in the assumed start situation of full employment $M[0] = ms[0] = md[0]$. Assuming balanced growth for demand and supply gives the development of the labour market situation at the bottom:

$$w = P rwi w[0] \quad \text{in general, i.e. for all } w$$

$$\Rightarrow \quad md = P rwi \, md[0] \quad \& \quad ms = P rwi \, ms[0]$$

This means that the supplied (inherent) productivity of those at the (original) minimum grows as fast as the labour costs which employers could afford. However, the true supply price is not productivity but the (actual) minimum wage M that grows with PJ and thus faster than the md . People in the class $[ms, M)$ will not find jobs paying the social minimum. They become unemployed.

Q.E.D.

Above theorem and proof may be regarded as a bit simple. However, they help to highlight some useful aspects:

- Differential indexation can have surprising consequences compared to conventional ideas.
- Instead of thinking that productivity growth reduces employment for the lowly productive, we grow aware that it is likelier that technology creates so many job possibilities that employers can finance even higher costs than subsistence. But the multiplier effect from wrongly indexing taxes can be even faster.
- There is the combination of nonlinear tax and lognormal productivity, which causes an upswing of the CWIRU in the early phase of stagflation.
- This holds for a wide class of tax functions, even some very nonlinear ones.
- Where the term 'income tax' is used, it also applies to VAT and insurance for old age, disability and the like, as long as part of these are considered to be part of subsistence and thus should be included in exemption.
- This theorem and proof are for a structural form, and inspire the theorem and proof for the reduced form that we discuss later.

Raising exemption

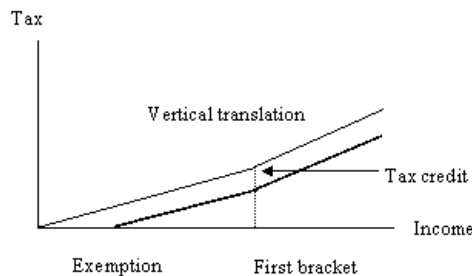
Our analysis points to the suggestion of 'waiving taxes for the lowly productive', which can be translated as 'raising exemption'. Interestingly, this latter translation appears to provoke some terminological confusions.

The notion of 'raising exemption' is often taken to imply that all other brackets *shift along* with exemption. This causes a huge loss of tax revenue. E.g. Gelauff (1992), who uses the official general equilibrium model of the Central Planning Bureau to compute the economic impact of raising exemption, adopts this expensive approach. (His scenario also includes the Dutch concoction of the 'transfer of exemption' by partners, so that his implementation is even more expensive.)

However, there are some alternative implementations. Their common feature is that taxes above the current minimum wage are essentially unchanged.

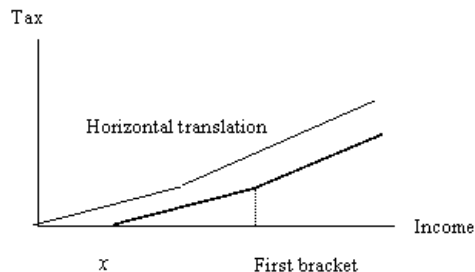
The issue can be clarified by the following two graphs. In Figure 26, the function with an exemption (bold line) can be compared to a function without an exemption (thin line) but with a tax credit (bold line again). The tax credit is given as $c = r_1 x$ where r_1 is the rate of the first bracket (taking that as defined by the tax credit). The two systems are mathematically identical, when seen as a vertical translation while keeping the bracket positions fixed.

Figure 26. Piecewise linear tax function with more brackets



A dubious and horizontal transformation is given in Figure 27, where the assumption of 'fixed bracket lengths' has been assumed rather than 'fixed bracket positions'. When we now subtract a fixed sum from the line through the origin, the original function cannot be retrieved, and the higher incomes pay more tax. It now seems as if the tax credit is 'fairer'. However, the true cause is that taxes have been raised by shifting the bracket positions.

Figure 27. Horizontal translation

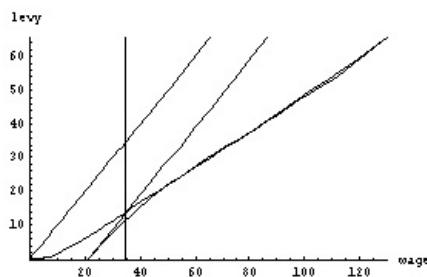


The Dutch Government “Tax Plan for the 21st Century” used this misleading horizontal translation to argue that tax credits would be more just than plain old exemption. See Colignatus & Hulst (2003:32) for the misleading statements.

Useful approaches are:

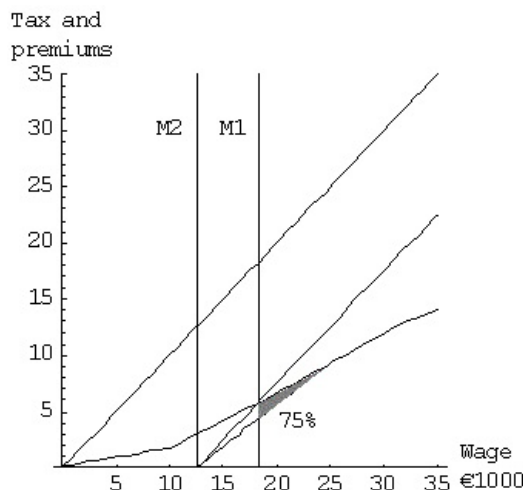
1. Introduce a new separate ‘tax group’ that only holds for workers below the current minimum wage. Let this group have a high exemption at the new minimum wage and a normal marginal rate of 50%. Clearly, there could be jump in taxes at the current minimum wage. However, the high exemption can be said to apply to all citizens - and many simply don’t qualify since they do not fall in the new group. (The latter is only unfortunate for them, if they prefer a high exemption above their current high income.)
2. One might opt for a 100% marginal rate from subsistence (the new minimum wage) *up to* the current minimum wage. In this case there is no tax jump. High exemption again applies to all citizens, but its effect is undone by an intermediate high marginal rate region. Whether this is considered to be a bad situation, depends upon the analysis of marginal tax rates: see below.
3. Introduce a nonlinear trajectory from subsistence to some place in the current regime. Since reduction of wage costs generates employment, the state saves on benefit payments, and some revenue can be used to reduce taxes also *above* the current minimum wage. This reduction can be done in a nonlinear way that allows for a fluent change, without jumps and without new tax groups. Figure 28 gives an example of such nonlinear trajectory, where the function *Tax[.]* has been estimated to fit the 1997 Dutch tax code (inclusive of premiums) but with a nonlinear repair towards subsistence. The special point is that this estimated *Tax[.]* has a negative curvature parameter. The 1988 income distribution has been used to approximate tax revenues. The currency here still is Dutch guilders.

Figure 28: Nonlinear repair Holland 1997 (Dutch guilders)



4. Figure 29 uses euro’s and the new Dutch tax code and minimum wage of 2002. Using a 75% first bracket allows the minimum wage to shift from M1 to M2. The shaded area gives the tax revenue lost, which would be compensated by saved benefits.

Figure 29: Linear repair Holland 2002



We will discuss the optimal regime later, and return to the issue of raising exemption. This paragraph here was useful to clarify some terminological confusions. It also indicates that marginal rates will feature strongly in the discussion about the repair. A marginal rate of 100% or the marginal rates associated with negative curvature seem prohibitive for practical implementation. At least, in the conventional wisdom.

A note on the negative income tax

A common topic in the subject of taxation is the concept of a negative income tax (NIT). A person below a certain threshold receives money instead of paying it. The negative income tax can be presented as a 'basic benefit': all members of society receive allowance A from the state, and pay taxes only on their additional income. The negative income tax or basic benefit is often presented as a solution to the current unemployment problem. The Central Planning Bureau (1992a&b) in fact shows that this can work.

It is useful to clarify the following. We can distinguish three groups with different effects:

- for the currently employed the NIT has no effect, since they already are employed and in fact already earn their own basic benefit
- for the people in the Tax Void, the NIT effectively only means the increase of exemption, and thus one might as well increase exemption
- for workers with sub-subsistence productivity, the NIT indeed provides additional revenue.

The second effect cannot properly be regarded as a positive effect of a NIT. Only the last effect is the NIT proper. However, proponents of the NIT often include the second group when they claim good results. In the current situation of mass unemployment, the employment effect will also be largest for the second group, so the effects of the NIT are grossly overstated. You may be familiar with the joke of the mouse and the elephant walking on a bridge, and the mouse proclaiming: "We make quite a lot of noise together, don't we?"

It must be noted that proposals on the NIT generally state huge sums of money. The NIT is very 'expensive' since all spouses would apply, causing the need for more changes in the tax code. [97]

The NIT complexities, and huge sums, also obscure the fact that abolishing the Tax Void would be for free. Proponents of the NIT thus can be compared to people at Amsterdam Schiphol airport wanting to go to Washington, and waiting at the ticket booth till they have enough money to buy the expensive ticket, while they overlook that, due to circumstances, the plane to New York flies for free.

The concept of a NIT, intended to do good, generally seems to cause people to do a lot of harm. The Central Planning Bureau (1992a&b) study assumed the gradual introduction of a NIT in the course of 25 years, keeping subsistence fixed at a constant inflation adjusted value of 1990, and the NIT fully introduced at that value in 2015. This scenario thus has the drawbacks of (a) achieving full employment only in 2015, (b) not indexing subsistence to general welfare.

It may well be that the Ministry of Finance is less equipped to deal with employment policy including the measurement of potential productivity. It would be better to quickly abolish the Tax Void, index subsistence properly, and restore the normal processes of social security and workfare to assist the sub-subsistence group.

The following equations clarify the relation between the NIT, exemption and subsistence. With market income y , the Bentham tax function $Bentham[y]$, allowance A from the state, then net income and implied tax are:

$$net[y] = y - Bentham[y] + A = y - r(y - x) + A$$

$$implied\ tax[y] = y - net[y] = r(y - x) - A = r(y - (x + A/r)) = r(y - x^{\oplus})$$

So by taking $x^{\oplus} = (x + A/r)$ the allowance in fact means adjustment of exemption, with the subtle difference that x^{\oplus} now just stands for the intersection with the horizontal axis, and not with exemption proper. Normally A would be chosen such that net income at subsistence $y = B$ equals B , so that we might as well raise exemption to subsistence:

$$B = B - r(B - x) + A \quad \Leftrightarrow \quad A = r(B - x) \quad \Leftrightarrow \quad x^{\oplus} = B$$

The marginal rate

The problem

The economic literature shows a conceptual problem, or paradox, on marginal rates. Statutory marginal rates are important in popular understanding, but not in the empirical data. Research, as witnessed by the existing literature such as Gelauff (1992), deals better with the data, but doesn't convince the popular view. The following analysis suggests a solution.

Partial versus total derivative

Conventional theory, public discussion and empirical research generally use statutory rates as the "marginals". With $\Pi[y]$ the tax associated with income y , the marginal rate commonly is computed as $\partial \Pi[y] / \partial y$. For our function this is the partial derivative as used in equation (29.1). However, the tax function is better understood not as $\Pi[y]$ but as the multivariate $\Pi[y, q]$ with q the (now arbitrary) tax parameters. Agents will tend to take account of parameter changes. So optimisation remains our paradigm - and it results into marginal rates - but the better marginal rate is the total derivative, [98] or dynamic marginal rate (DMR):

$$\frac{d\Pi[y, q]}{dy} = \frac{\partial \Pi[y, q]}{\partial y} + \frac{\partial \Pi[y, q]}{\partial q} \frac{dq}{dy}$$

The topic of discussion is dq / dy . To proceed from this point, it appears didactically useful to first restate the conventional reaction to the DMR, and then develop the new analysis.

A conventional reaction

The conventional reaction is that tax parameters may be indexed to national income, but are not indexed to personal income. The individual agent in the economy will not think that his change in income can affect national tax parameters. Hence dq / dy should be zero.

Let us use the Bentham tax function again. Let us assume that only exemption is indexed on national income, and in continuous form the indexation reads as $x = \xi Y$ with ξ as a fixed value for a base year. Thus:

$$\Pi[y] = \text{Bentham}[y, \xi Y] = r (y - \xi Y)$$

It appears that ξ is very small. For example, with LE the number of tax payers, and Y / LE average income, we may take exemption as a third of average income, so that $\xi = x / Y = 1 / (3 LE)$. But the small size does not invalidate the indexation method, since:

$$d\text{Log}[x] = d\text{Log}[\xi Y] = d\text{Log}[Y]$$

Note that Y is the sum of all incomes. An income change for an individual does not affect the income changes of others. Assuming that other incomes stay fixed, we find for an individual income $dY / dy = 1$. If y rises and no other income rises, then the growth of national income $d\text{Log}[Y]$ is equal to the growth for the single person weighted by its share in total income:

$$d\text{Log}[Y] = (y / Y) d\text{Log}[y]$$

It follows that the marginal tax for the individual is:

$$d \Pi[y] / dy = r (1 - \xi)$$

Now, since ξ is such a small number, the marginal rate is virtually equal to r .

☺

In general we find:

$$dq / dy = (dq / dY) \cdot (dY / dy) = dq / dY$$

Since $dY/dy = 1$. If parameters are indexed on national income, then $d\text{Log}[q] = d\text{Log}[Y]$ and then $dq/dy = q/Y$ so that

$$dq/dy = q/Y$$

which is close to zero since parameters q are generally much smaller than national income. We conclude that $dq/dy = dq/dY$ is not quite zero, but practically zero, and this seems to corroborate the conventional reaction to the DMR.

Hence the conventional reaction to the DMR is that the DMR does not change the traditional analysis on marginal rates. Hence there is no hope for unemployment along these lines. With ongoing technological growth and competition of low wage countries, only the flexibility of labour markets will help to reduce unemployment, even if this means a reduction of net minimum wages. That, at least, is the conventional reaction.

The expectations revolution

However, Keynes (1936) explained that proper dynamic analysis inherently means that we have to consider expectations.

In this case the agent will be aware that parameters are indexed in some manner. Due to indexation, the term dq/dy can take significant values. Let q be indexed on national income growth Y . For many tax functions the indexation of parameters may take the form $d\text{Log}[q] = d\text{Log}[Y]$ - as can be done for exemption and curvature of $\text{Tax}[y]$. If $d\text{Log}[q] = d\text{Log}[Y]$ then

$$\frac{dq}{dy} = \frac{q d\text{Log}[q]}{y d\text{Log}[y]} = \frac{q d\text{Log}[q]}{d\text{Log}[Y]} \frac{d\text{Log}[Y]}{y d\text{Log}[y]} = \frac{q}{y} \frac{d\text{Log}[Y]}{d\text{Log}[y]}$$

This again may reduce to the q/Y above. However, if we take expectations of the growth of national income, which means that the agent assumes that the other incomes do not remain constant, then:

$$E\left[\frac{dq}{dy}\right] = \frac{q}{y} \frac{E[d\text{Log}[Y]]}{d\text{Log}[y]}$$

Thus, next to knowledge about indexation, the agent will have expectations about the national income growth $d\text{Log}[Y]$, and compare his own growth of income $d\text{Log}[y]$ to this expectation. In terms of expectations, dq/dy does not vanish to zero. This is especially relevant when the parameter q gives exemption x that is a sizeable part of income.

So there is hope for the unemployed.

Discrete form

Above can also be formulated in discrete form. Indexation generally takes place with a lag, and then the discrete DMR is more adequate. This is:

$$\text{DMR}[y] = (\mathcal{T}[y, q] - \mathcal{T}[y_{-1}, q_{-1}]) / (y - y_{-1}) = \Delta T / \Delta y$$

Book III gives a development for the Bentham tax function, and also gives plots for regular numerical values. It appears that indexation and expectations about the growth of national income (relevant for indexation) again lead to other results than the conventional view on marginal rates.

Policy simulations

There is one area where the DMR cannot easily be overlooked. This is the area of policy simulation, where tax adjustment cannot be neglected. For sure, empirical analyses and government projections indeed *deal* with tax parameter changes. For example the well-known Reagan tax cuts were put into the forecasts at that time. However, we should wonder now whether the methods have been right. The analysis above focusses our attention on the impact on individual behaviour, where we regard the marginal calculation by agents themselves.

Let us regard policy simulations using common practical economic models. Let us for example regard the effects of a rise of government investments as financed by taxes, for a sustained period of 8 years (two

presidential terms). To do a simulation properly, the tax function used must reflect government policy, which includes indexation. For example, exemption and other brackets are adjusted for last year inflation while the statutory marginal rates remain the same. The different investment paths result in different paths for the taxes. This is not just a model result, but also the agents in the economy would encounter different regimes. Thus the model generates different *dynamic* marginal rates, while the agents are assumed to react only to the same (*static*) rates. The situation gets even complex when the alternative policy includes a different indexation scheme, such as indexation of taxes on national income. All this means, then, that we are justified in doubting the validity of current modeling practices. Modelers should start wondering about this kind of dynamic consistency (not to be confused with the 'dynamic consistency of policy' as another topic in economic literature on 'credibility').

It might even be, then, that the best way to understand the dynamic marginal rate is to see it as a solution to this kind of dynamic inconsistency.

Balanced growth

Under balanced growth, taxes will grow as fast as incomes, with a constant tax share TAX / Y , assuming proper indexation of the tax parameters. A result will be that the dynamic marginal equals the average tax rate, for all individuals. Book III already mentioned the key relationship here, in property (13.3e).

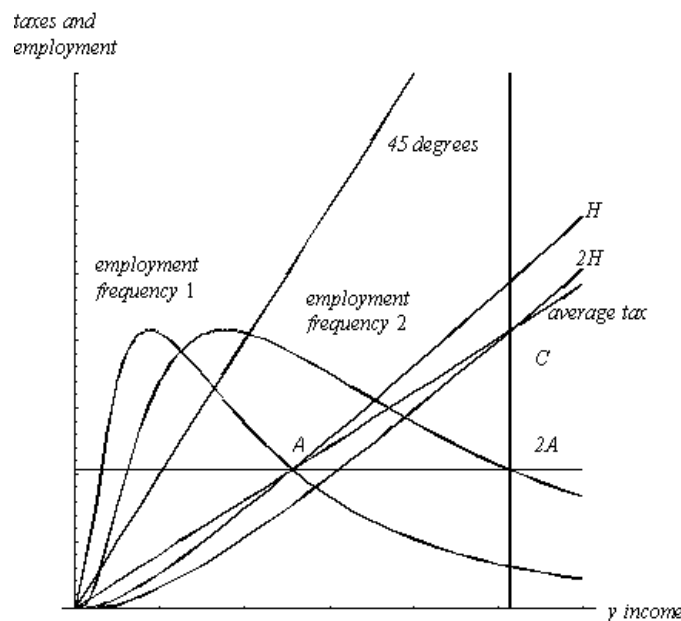
We use $Tax[.]$ for an illustration. Here a solution for a balanced growth path is that parameters x and c are indexed on y . With the index for y as $i = P r y i$ ($i > 0$), we find for the (individual) average tax burden that the index drops from both numerator and denominator:

$$T[i y; r, i x, i c] / (i y) = r(i y - i x) / (i c + i y) = T[y; r, x, c] / y$$

(Less relevant, (29.1) remains the same too.)

The situation of a constant dynamic marginal rate is depicted in Figure 30.

Figure 30: A balanced growth shift
A-2A: constant frequency, A-C: the same average tax



Let us take the example of a doubling of income. Point A is an arbitrary point on the employment density. We scale the density so that A also lies on the tax function (H). For that arbitrary income at A we determine the average tax as a ray through A and the origin. Now, if all incomes double, then the employment frequency density shifts, and A becomes 2A. If tax parameters x and c double too, then the tax function becomes (2H). At 2A the individual pays tax C, which is the same average tax as in A (vide the straight line through origin, A and C).

Off balanced growth

Income growth means a shift of the employment density or the earnings distribution. Earlier we looked at income distributions for Holland 1950 and 1988, and the reader may now better understand why. The Dutch distributions could be approximated by lognormal

distributions, but the mean, variance and the size of the labour force changed. Taxes also have been indexed on inflation instead of income. So we may surmise that there was no balanced growth.

How do agents react when there is no balanced growth? Indexation to national income can be said to be “neutral to the income change”. The tax choices facing an individual, whose income grows as national income, are constant. The utility reaction thus depends on the change of income itself. It may be that an individual, whose income might grow as fast as national income, decides to grow differently, either more or less, depending upon his leisure-income utility. Since the context is that all individuals are adjusting, this may be reformulated as that individuals are determining their place within the income distribution.

Our analysis thus suggests that tax incentives primarily affect decisions about one’s place in the income density. Any individual change that differs from the national average can be interpreted, or defined, as the individual decision to accept another place in the income distribution. It would be interesting to reinterpret economic models on growth in these terms, and see whether elegant regularities can be found or constructed. However, it leads too far to really look into this matter, since it is not our proper subject.

We conclude that indexation and expectations about the growth of national income (relevant for indexation) lead to other results than the conventional view on marginal rates.

30. Dynamic curvature of the tax wedge

Introduction

The tax wedge at the minimum is caused by differential indexation, and makes for a higher gross minimum wage. This has been clarified above. A second point is curvature. Due to curvature, the wedge comes close to its limit value for already low levels of productivity growth. Thus, the negative effects of the wedge occur primarily at the onset of economic growth, and are less noticeable when stagnation has already set in. This already has been indicated above, but the argument can be developed by giving formulas and plots. Especially, it are the plots that may help us to understand that the major distortionary effects took place in the 1960s and 1970s. People looking only at the events in the 1990s are less likely to see the root of the problem.

In the following we first derive the formulas and then give plots for the average tax rate (ATR) and the gross-to-net ratio (GNR). The latter ratio may better express the effect on the gross minimum wage. We find that the ATR and the GNR at the minimum rise faster than for other incomes, since the minimum itself moves faster than those other incomes. For ease of exposition we use the Bentham tax.

Formulas

The average tax rate (ATR) and the gross to net ratio (GNR) are:

$$ATR[y] = \text{Bentham}[y] / y = r(1 - x/y)$$

$$GNR[y] = y / (y - \text{Bentham}[y]) = y / ((1 - r)y + rx) = 1 / (1 - r + rx/y)$$

Examples work best. Let subsistence B be exempt from taxation so that $x = B$, and let the marginal tax rate be 50%. The average tax rate (ATR) of a subsistence worker then is 0, and the gross to net ratio (GNR) is 1. At twice subsistence, the tax is 50% $(2B - B) = B/2$, and thus the average tax is 25% and the gross to net ratio of 4/3. In the limit, i.e. when exemption has been reduced to a negligible proportion, then the average tax equals the marginal rate of 50% while the gross-to-net ratio is 2.

Next, notice two points. First, the formulas by themselves do not quite show how quickly the limit values are approached. To answer this question we can best look at some graphs. Secondly, these examples are static, i.e. at one point in time for different incomes. Thus, when we make graphs, then we can use a static index, and compare an income level 1 to an income ten times as large. In dynamics, i.e. when incomes rise, things are a bit complicated.

In dynamics, and concerning the current practice of adjusting exemption for inflation, we can take exemption as constant, and look at real incomes (adjusted for inflation). It seems as if we can take the formulas and graphs of the statics case, and compare real incomes regardless of the time. However, in dynamics, ‘minimum income’ is not

just 'income' but is a mechanism. The concept of M is that it picks out one income as the minimum, but it can pick that income at a different rate of growth depending upon the mechanism. The interaction between indexation, net subsistence, the tax parameters cause a multiplier effect. Before we make plots we have to develop on this.

Let us first regard a general formula for dynamics, and see that it seems as if there were no difference with the formula for the statics case. Let exemption x be adjusted for inflation with index P , then $x = P x[0]$. Here we assume that $x[0]$ can differ from subsistence in the base year $B[0]$. Let y be adjusted for the real level of income, with index rwi , too; then $y = P rwi y[0]$. Define $f = x[0] / y[0]$. Then:

$$ATR[y] = r(1 - x/y) = r(1 - x[0]/(y[0] rwi)) = r(1 - f/rwi) = ATRwi[f, rwi]$$

It must be noted that $y[0]$ depends upon y , so that f may take continuous values. $ATRwi[f, rwi]$ expresses that if we have a value of y , then we could interpret this as deriving from various combinations of f and rwi as long as $rwi x[0] / f = y$. The dynamic $ATRwi[f, rwi]$ thus seems no different from the static $ATR[y]$. The complication however comes from subsistence. We cannot regard M as a normal case of $y = P rwi y[0]$.

Denote the average tax at the minimum wage as, $ATR_M[rwi]$. We will use the suffix 'M' in general to signify this dynamic point of view. [99]

In Book III we derived the real subsistence index rsi for the Bentham function when $x = P x[0]$, so that $B = rsi P B[0]$.

$$rsi = \frac{(1-r)rwi + r h}{1-r+r h} \quad (13.3d)$$

Then:

$$M = B + Bentham[M] \Rightarrow M = (B - r x) / (1 - r)$$

$$M = (P rsi B[0] - r P x[0]) / (1 - r)$$

$$m = M/P = (rsi B[0] - r x[0]) / (1 - r) = m[rsi]$$

$$ATR_M[rwi] = ATR[m[rsi[rwi]]]$$

We can develop this a bit further, using $j = x[0] / B[0]$:

$$GNR_M[rwi] = M/B = (1 - r x[0] / B[0]) / rsi / (1 - r) = (1 - r j / rsi) / (1 - r)$$

$$ATR_M[rwi] = Bentham[M] / M = 1 - 1 / GNR_M[M] = r(1 - j / rsi) / (1 - r j / rsi)$$

Over time, rsi will rise to infinity, and limit values will be $GNR[\infty] = 1 / (1 - r)$ and $ATR[\infty] = r$ as for all incomes.

Graphs

First we plot the static ATR and GNR for values of a real net wage index from 1 till 10. Figure 31 plots the paths for various marginal tax rates: 10%, 20%, ..., and even 70%, all assuming $x = B = 1$. These plots show the point made earlier, that the ATR is close to the marginal rate at already low income values, e.g. 2 or 3 times subsistence.

Figure 31: Average tax, in statics, for various marginal tax rates



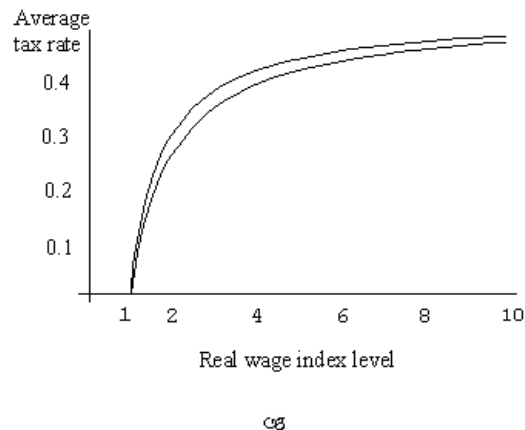
We might interpret static Figure 31 in a dynamic way. Take $B[0] = x[0] = 1, j = 1$. We may take a theoretical example. If you have a period of 35 years, then a real growth of 2% per annum would suffice to double

incomes. So in the standard unrefined analysis, the tax creep in 35 years would cause incomes to be taxed at average rates close to the marginal rate. [100]

The more refined analysis for the minimum wage takes account of the multiplier effect. First of all, if real subsistence doubles from $B[0] = 1$ to $B[35] = 2 B[0]$, the gross minimum wage would be $M = (2 - \frac{1}{2}) / \frac{1}{2} = 3$, and hence we should look in Figure 31 at index 3 instead of index 2. This issue however is a bit more complex, since when $rwi = 2$, rsi is not 2 but 1.7.

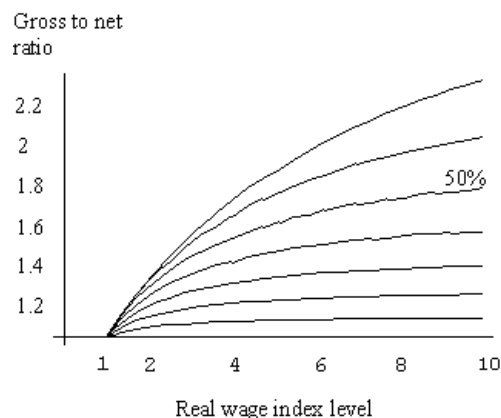
In Figure 32 we compare the standard ATR and the dynamic ATR_M . We regard only one marginal rate (a 50% rate) and a 'peg average' $W[0] = 2 B[0]$ or $h = 0.5$. It appears that the dynamic ATR_M is steeper and higher than the static ATR . However, the difference is not that big. Note though that we would want an average tax rate of 0 for the minimum wage (subsistence) instead of something close to 30%.

Figure 32: Average tax rate, static and dynamic, for $r = 50\%$



In Figure 33 we regard the dynamic GNR_M 's, now plotted for various values of r . We can see that the rise is largest in the lower reaches of the graph. For example the 50% rate already reaches the level 1.6 around the index value of 4, and 1.6 does not differ much from the limit value of 2.

Figure 33: Gross-to-net ratio, in dynamics, for various marginal tax rates



31. Differential impact of the minimum wage on exposed and sheltered sectors

Some sectors of the economy are exposed to foreign competition and some are sheltered from it. These exposed and sheltered sectors are likely to have a different composition of their labour force, notably different rates of dependency on the minimum wage. If a national

incomes policy does not respect these differences, a country can have both unemployment and a surplus on the trade account.

Introduction

The two Oil Crises in the 1970s created a problem for the Dutch economy which has become known in the literature as the so-called "Dutch Disease". When the price of a nationally produced but internationally traded resource rises - and this happened since Holland is rich in natural gas and a free rider of OPEC - then this causes the exchange rate to rise, and then this indirectly causes a reduction of the other exports and an increase in competing imports. Thus the original increase in national wealth paradoxically combines with an increase in unemployment - and eventually a lower growth path.

This chapter concerns the Dutch policy reaction to that Dutch Disease. If policy is not targetted at stabilisation of the exchange rate by monetary means and capital flows, but at tinkering with the labour market, then the situation - the disease - can grow worse.

Our analysis will use the distinction between the 'exposed' and the 'sheltered' sectors of the economy - a distinction that originates from Swedish analysis in the 1950s (Meidner c.s.).

The Dutch policy reaction - though with some lag - was a general restraint of wage growth. This reaction was motivated by reference to the so-called Vintaf model developed by Den Hartog and Tjan at the Central Planning Bureau - see Driehuis & Van der Zwan eds. (1978) and Driehuis, Fase & Den Hartog eds. (1988). [101] The direct assumption was that high wage costs cause the scrap of old vintages of the capital stock, resulting in an irreversible loss of capacity. The indirect presumption was that a relative reduction of production costs could compensate for the rise in the exchange rate, restoring competitiveness and employment. [102]

However, in a quite brilliant exposition that up to now has been neglected to the shame of the Dutch economics profession, Marein van Schaaijk (1983) of the same Bureau showed that a general wage restraint neglects the fact that the exposed and sheltered sectors have a different composition of their labour force, with important effects. He noted that the exposed sector is industrial and has the larger share of well educated, highly productive or high value added labour; while the sheltered sector concerns services and has the larger share of lowly educated, lowly productive or low value added labour. A uniform wage restraint - targetted at reducing unemployment rather than balance on the external account - is too high for the exposed sector and thus subsidises exports; and the restraint is too low for the sheltered sector and thus generates unemployment. The restraint of incomes also means a restraint of imports, aggravating the situation. So Van Schaaijk noted in fact both the internal and the external imbalance, recognised that these mirrored each other, and that these were prolonged, now not by the original energy price hike but instead by policy.

Indeed, Holland since then has a strong external position - exporting unemployment to Europe - and a high internal unemployment - where the unemployment is hidden in 'disability' (and hence registered by dull statisticians as 'low participation'). Some surplus of the external account is reasonable given the natural resource, and the capital flows for foreign investments are useful for when the resource is depleted. But the Dutch external surplus is excessive.

Van Schaaijk's suggested remedy was standard and sound. It was and is to let wages develop in line with productivity. Since Dutch policy is oriented to maintaining a more equal distribution of income - which explains part of the policy drive to see a *uniform* development in wages - Van Schaaijk advised to use tax policy to correct the differential development of gross wages for its effect on net incomes.

However, as said, Van Schaaijk's analysis has been neglected to this day, and Holland now suffers from a long period of unemployment *and* a trade surplus *and* a general restraint of wages and net incomes. There is a curious 'consistency' in the delusion with policy makers, that incomes restraint is required to maintain employment by generating a trade surplus, since, by restraining the home market, most Dutch employment growth seems dependent upon trade indeed. Strangely, economic developments caused the Central Planning Bureau to drop the Den Hartog & Tjan model in the mid 1980s, but the policy of wage restraint remained.

In the 1982-1991 period I worked at the Central Planning Bureau too, and had the opportunity to get acquainted - albeit around 1986 only - with

Van Schaaik's analysis. Apart from being enlightening by it itself, it opened my eyes - even while it was standard - to the importance of tax policy for unemployment, and thereby led to my papers (Colignatus (1989-1996)) and this present book, on the solution to the current mass unemployment in the OECD countries in general.

In my papers I have always referred to Van Schaaik's 1983 article whenever it was proper. However, in this chapter I have occasion to more specifically combine his analysis with my own. This chapter improves on Colignatus (1996g), and as I wrote there: this combination of our analyses has been in my mind for a long time, but there was no time to develop it, as, in fact, this chapter suffers from some time constraints too.

We shall use a general equilibrium model where the exposed and sheltered sectors have different combinations of labour as in the Van Schaaik observation. But now we take my analysis on the minimum wage, and let the minimum wage have the differential impact. This is more relevant for the OECD in general. Note, though, that I do not want to imply that all OECD countries have a trade surplus; other conditions are relevant here too, of course.

Due to lack of time we use a closed model. Thus we cannot reproduce the external imbalance. But we can reproduce the difference in reactions of the two sectors. We may study situations *with* full employment (1950-1970) and *without* this (1970-2005). Below, we give a model, tables and graphs.

Model

Regard a general equilibrium model with 15 units of highly productive labour (h), 75 units of modally productive labour (m) and 10 units of lowly productive, minimum wage workers and possible benefit recipients (l). The economy has exposed and sheltered sectors that produce output y_E and y_S , while a social welfare function (SWF) determines the optimal combination. In an open model, the y_E would be traded for $y_{Foreign}$, but here we assume that exports are directly equal to imports for consumption. The SWF will here be a Constant Elasticity of Substitution (CES) function that neglects the distribution of income:

$$SWF = (0.7 y_E^{-0.667} + 0.3 y_S^{-0.667})^{-1.5} \quad (CES=0.6)$$

Output of the sectors is determined by production functions that depend upon the allocation of the labour factors h , m & l . Since we will compare two regimes, one with l and one without l , this factor cannot be complementary (necessary), and hence it is substitutable to some degree with the other factors. The sheltered sector is a one level CES with all factors substitutable:

$$y_S = (0.36 h_S^{0.334} + 0.54 m_S^{0.334} + 0.10 l_S^{0.334})^3 \quad (CES=1.5)$$

The exposed sector is a two-level CES where highly and lowly productive labour are complementary, but both are substitutable with minimum wage labour:

$$y_E = (0.99(0.2 h_E^{-1.5} + 0.8 m_E^{-1.5})^{-0.1111} + 0.01 l_E^{0.1667})^6 \quad (CES_{in}=0.4, CES_{out}=1.2)$$

The coefficients have been chosen so that these outcomes resemble a real economy. We should refrain from making our conclusions too specific though, since the coefficients are arbitrary.

Graphs

We consider two regimes, one *With* l (i.e. the minimum wage M is not binding), and one *Without* l (with M binding, causing unemployment and lower national income). Subsequently, the model is run with the computer program listed in the appendix; see chapter 37 for another application of the computer routine (and additional explanations of terms).

Figure 34 plots the production possibility curves and the SWF indifference maps of the two situations. The regime with a binding minimum wage - and less workers - indeed has lower production and lower utility. The drop in production in the sheltered sector is larger than in the exposed sector.

Figure 34: Production Possibility Curves & Indifference Maps

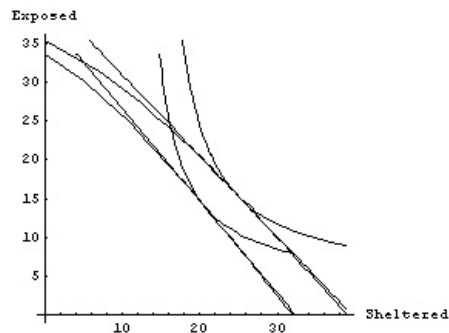
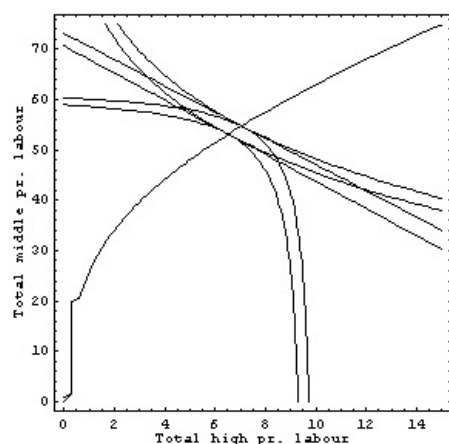


Figure 35 plots the Edgeworth-Bowley diagram for factors h and m , with Sheltered in the lower left and Exposed in the upper right. The movement is upwards along the contract curve. The highly productive workers in the second regime become relatively scarce, and command a relatively higher share of national income. [103]

Figure 35: Edgeworth-Bowley Diagram



Tables

The following tables give the numerical outcomes of the two regimes. When M is binding, the subsistence workers l are unemployed and dependent on a benefit. Since they do not work, output and social welfare are lower. Though there is no explicit social security in this model, we however can presume that part of earnings of the workers is channeled to the unemployed, leaving consumption from those earnings unaffected.

The social optimum is found as in Table 9. The associated allocations are in Table 10 - left and right side. When you compare the two regimes, please note that the prices are normalised *per regime* to a unit price for the sheltered sector, and thus are not comparable over regimes.

Table 9: Utility, production and national income for two regimes

	<i>Utility level</i>	<i>National income</i>	<i>Product prices Sheltered & exposed</i>		<i>Production S & E</i>	
With l	21.20	39.67	1	0.9579	24.93	15.38
Without l	18.16	32.37	1	0.840	20.74	13.85

Note: All prices are scaled so that the product price of the sheltered sector = 1.

This is also done per regime, so that the price levels over the regimes are not comparable.

In Table 10 we see that the share of the highly productive in national income rises. Most of the share of the l go to the m , but this is generally viewed as an internal redistribution, and most attention goes to the share of 'the rich'.

Table 10: Allocations

	<i>Allocation with l</i>	<i>Allocation without l</i>

	<i>High</i>	<i>Middle</i>	<i>Subsistence</i>	<i>High</i>	<i>Middle</i>
Labour units Sheltered	6.53	53.08	9.57	7.07	54.73
Labour units Exposed	8.47	21.91	0.43	7.93	20.27
Labour units Total	15	75	10	15	75
Wage	0.88	0.33	0.19	0.74	0.28
National Income Share	0.33	0.62	0.05	0.34	0.66

Note: Using unrounded data on the wages, the high/low wage ratio in the first regime is 2.69, and in the second regime 2.60.

Conclusion

By proper choice of functions and parameters we have succeeded in reproducing and hence illustrating the Van Schaaijk observation & analysis of the differential reaction of the exposed and sheltered sectors on incomes policy. As Van Schaaijk found, the sheltered sector loses most, and it would be optimal to have wages reflect productivity. And similarly, this can be supported by tax policy. Whereas Van Schaaijk commented on the Dutch policy of the uniform containment of wage growth, we have concentrated on the minimum wage - as is more applicable for the OECD. Indeed, if the whole of the OECD would try to copy the 'Dutch model', then this would amount to trying to export unemployment to each other, and a thing like that surely would not work.

32. Dynamic optimality

The Phillipscurve revisited

In chapter 25, the 'more sophisticated view' section, we mentioned that Graafland (1990b) elaborated on Hersoug (1984), and recently again in Graafland & Huizinga (1999). The approach here is a Nash solution to wage bargaining. The approach causes that marginal tax rates penalize wage demands and increase employment - contrary to the common thought that statutory marginal tax rates reduce incentives and hence reduce employment.

We ourselves forwarded the novel insight of the 'dynamic marginal tax rate': saying that marginal tax rates should be better measured by also including expectations on parameter changes and economic growth.

The question now arises how these two approaches *combine*. The Nash approach uses partial derivatives, while the dynamic approach uses total derivatives. If we would take the total derivative of the Nash solution, it might well be that statutory marginal tax rates show an effect again that is more in line with the conventional view. The four possible combination cases are shown in Table 11.

Table 11: Two marginal approaches for two Phillipscurves

Marginal approaches	Phillipscurves	
	<i>Traditional: only labour supply</i>	<i>Nash bargaining</i>
<i>Standard marginal analysis</i>	(1) the marginal tax rate has a disincentive on labour supply and thus causes wages to rise	(2) the marginal tax rate has a disincentive on wage claims
<i>Dynamic marginal tax rate</i>	(3) the marginal tax rate has no disincentive, relevant is the average tax	(4) ?

I have not performed the analysis yet. By the next edition of this book I should have. My intuition however suggests - and I keep an eye on reality - that the two approaches only combine into a stronger argument against the conventional view. Doing this additional work thus currently is expected to be a bit overdone just now.

Investment, growth and productivity

The following has been in my mind since Colignatus (1989) but was not stated in the first edition of this book. One of the key points of Keynes in the *General Theory* was that the true, real, savings of an economy consist of what is invested. All the money that people save does not count as an investment or real saving. Whatever amount they bring to the banks or even hide under their beds, it is only money. One can have nominal saving S and price level P , but the division S / P is more psychological than real. What counts are the houses built, bridges constructed, lessons learnt, all that can be carried over to the next period. In fact, a company that produces but can't sell and goes bankrupt might actually do society a favour, since at least some goods have been produced which otherwise might not have come into existence. The challenge is to get production and investment without such perceived incompetence or fraud. The economy should be designed so that those investments come about in an optimal way, where the optimum must be defined not only in terms of expectations and stability but also in terms of social welfare and full employment.

Governments, especially European ones, have been experimenting since World War II with all kinds of methods to control investments, but have been confronted with two major outcomes: (a) unemployment remained high, (b) many investments were considered failures. The economic paradigm since the Reagan years has been to let investments be determined by the market. Also Dutch social democrats like Wim Kok supported this approach, since it was thought that employment depended upon growth while growth depended upon the best investments that the market could provide. This paradigm led to reduced government outlays, less fiddling in the market, privatisation, and reduced taxes for the wealthy who were assumed to do the investing. The 1990s showed the boom associated with silicon valley - though should properly be associated also with this policy and the implementation of new financial instruments. But the boom went bust and the world was reminded of the logic of Keynes's depression economics, see Krugman (1999).

The point of criticism is that employment and growth are rather separate issues. Our own analysis in this book shows that a return to full employment is possible. The main instrument is to get rid of the tax void. Employment does not depend upon growth per se but employment depends upon a properly working system to allocate the work that is being done in an economy. Growth comes only into the story when we aspire at higher welfare by means of higher productivity. If we don't want growth, we can easily imagine a stagnant economy. That said, most economies aspire at a growth in welfare. We can do this by designing new products or by material investments or by creative ways to reorganise production. [104] Then the problem returns of optimising investments that define real savings. Since some sections of the economy are devoted to investments, there is also the Keynesian phenomenon that investments influence activity, income and nominal savings.

The paradigm to 'minimize' the role of government in investment was misguided since the relation between growth and employment was misspecified. Now that we know that the tax void was the main cause of stagflation we can reconsider the paradigm. The argument that remains is that government meddling supposedly caused failed investments. The answer to that argument is (i) that failures must be judged on a case-by-case manner, by Cost Benefit Analysis, and (ii) that one should include the concept of Keynesian recession and that some investments might seem a failure but actually are beneficial. Note that there is no need for a government deficit since the analysis on the dynamic marginal rate shows that progressive taxes need not be a drawback for the richer. If growth is the issue, then the true issue is its optimality in terms of level and composition and effects.

The line of thought that I would suggest is that this optimum requires competing investment banks that develop plans during the economic upswing that can be implemented during the economic downswing. Who worries about pensions and the EU Lissabon Strategy is advised to consider this approach. Since the market is an anonymous beast that may or may not generate such competition, it remains the challenge for governments to mastermind and manage it all.

33. Introduction

Kenneth Arrow (1950, 1951, 1963) presented an Impossibility Theorem in which he showed that decisions about 'the general welfare' are impossible in certain cases or have to be left to a dictator. Arrow presented some five axioms that each seemed reasonable when considered by itself, and he argued as well that these axioms are morally desirable and fitting to the concept of 'general welfare'. He also formulated the problem in general terms so that it concerns choices on goods or people. Subsequently, he derived a contradiction. This result caused quite some consternation, but eventually the mathematical rigour caused acceptance, and since then the Theorem forms the core of many books, such as Sen (1970) and Mueller(1989). The Theorem was also one of the reasons to award Arrow the Nobel Prize in economics.

A voting example is given by the US Presidential election of 2000. Apart from the problems around the ballot process itself, there was a more basic problem: with main contenders Bush, Gore and Nader, Bush got elected, but in another system, such as a run-off between the two 'major' contenders, the Nader vote apparently would have switched largely to Gore, making him the US President. So the choice depends as much upon the system chosen as on the preferences. Can we find a generally good system ? Arrow's Theorem suggests 'No'.

Arrow's Theorem has had a huge influence on scientific and political thought. Part of this influence is subtle, where skepsis arises about the concept of 'democracy'. That shiny goal loses its appeal when we don't know how representatives should be elected and when morally desirable rules would be impossible. Opting for the natural forces in the social process may be more pragmatic. The influence of the Theorem can sometimes be more explicit. Next to the model of the utility maximising individual, there is the model for society as a whole and then the maximisation of a Social Welfare Function (SWF). But when a morally acceptable SWF is impossible, what would be the use of research into such an inherently flawed concept ? Many nations co-ordinate their economic policy, and have created institutions for this, like the Council of Economic Advisors (US), the Commissariat du Plan (France), the Sachverständigenrat (Germany), and the Central Planning Bureau (Holland). Such an institution, given its role in the co-ordination of economic policy, could be expected to do research on the national SWF. However, those institutions tend to abstain from that kind of research, pointing to Arrow's Theorem as one of the arguments, if not the major argument.

Over the years an 'accepted view' has grown in economics concerning the meaning of Arrow's Theorem. This accepted view however has also implied a kind of moral stagnation.

There are two main reasons to reconsider the accepted wisdom on the meaning of the Theorem and to rekindle the debate on it. The first reason is destructive, since it rejects Arrow's position; the second reason is constructive, since it provides an alternative.

These reasons are: (1) There is a distinction between the mathematical framework on one hand and its interpretation on the other hand. The Theorem holds, and the impossibility holds for Arrow's axioms, but the questions of reasonableness and moral desirability are of a different kind. (2) The area of application of Arrow's axioms seems rather static, while reality is dynamic. By considering the role of time, there is more scope for morality, and then one can identify a voting procedure that many would find attractive.

The two following chapters develop these arguments subsequently. Readers interested in more details are referred to Colignatus (2001), "Voting Theory for Democracy". That book develops the theory of direct single seat elections from the bottom up while it also provides programs (in *Mathematica*) to eliminate the tedious work of the calculations of the various voting procedures.

34. The solution to Arrow's difficulty in social

choice

Summary

Arrow's Theorem holds that no constitution can satisfy certain properties. In annex to that theorem, Arrow claims that those properties are reasonable and morally desirable. In Arrow's view there thus is the difficulty that people desire a constitution that cannot exist. While the Theorem stands as a mathematical result, the additional claims concern some other matters, namely the domains of reasonableness and morality. It are these claims that have caused much confusion in the literature. It is shown here that the claims are unwarranted, since inconsistent properties are neither reasonable nor morally desirable. It is shown too that Arrow's axiom of Pairwise Decision Making (formerly known as the Independence of Irrelevant Alternatives) is not realistic, and thus unattractive. We show the existence of some constitutions without that axiom that are consistent and might be optimal to many. The major error made by Arrow and his students is to mix up the context of scientific discovery and learning with the context of application to the real world by educated people.

Introduction

Arrow (1950, 1951, 1963) showed that if certain properties are postulated for a constitution, then such a constitution would not exist. This result has been checked by numerous scholars, is accepted by this author, and thus stands as a mathematical theorem. In fact, we will give a short proof below.

Arrow also claimed, annex to the theorem, and *this* will be at issue here, that those properties would be reasonable and morally desirable. He recently repeated that claim in the Palgrave (1988:125). He writes:

"(...) conditions to be imposed on constitutions (...)"

"(...) there is no social choice mechanism which satisfies a number of reasonable conditions".

For clarity it is useful to introduce the following abbreviations for the theorem and its companion claims, and their conjunction:

AT = the Arrow Theorem

ARC = the Arrow Reasonableness Claim = the properties are *reasonable*

AMC = the Arrow Moral Claim = that they are *to be imposed*

AGV = the Arrow General View = *AT & ARC & AMC*

Note that Arrow's phrasing on *ARC* and *AMC* is a bit ambiguous. The "to be imposed" might not be moral but merely logical, in a sense that one needs at least some conditions to make a constitution. However, the topic of collective choice is distinctly a moral one. Secondly, Arrow emphasises what is to be imposed and what is reasonable, but he may not be in a position to impose his views and morals on us. The best interpretation of the situation likely is as follows. Presume that Arrow sees the Founding Fathers at work. He then retreats to his office, and conjectures: 'If I interpret correctly what they want, then it are these properties.' Thus the *ARC* and *AMC* are not quite Arrow's personal ideas. Above quotes can best be interpreted as factual statements on what people apparently want and consider reasonable.

Arrow's general view has been accepted in many places in the literature and textbooks, see Luce & Raiffa (1957), Johansen (1969), Sen (1986) or various other entries in that same Palgrave. For example, Tobin (1990):

"We know there is no way to aggregate individual preferences into social rankings (...). As if this were not obvious, Kenneth Arrow proved it rigorously years ago. The impossibility applies to aggregations across contemporaneous cohorts, a fortiori across generations living and unborn."

In a much used book on Cost-Benefit Analysis (CBA), A.K. Dasgupta & D.W. Pearce (1980):

"(...) no escape route (...) seems yet to be available."

Apparently feeling that Arrow's argument destroys the foundations of CBA, they find themselves forced, rather grudgingly, to reduce CBA to something like information gathering.

In an otherwise recommendable volume of Statistical Science, Gill & Gainous (2002) find:

"In fact, he proved that unless one is willing to violate one of a set of reasonable democratic norms, (...inconsistency...) is an inevitability. (...)

Therefore, collective social decisions cannot yield a truly democratic system in this sense."

Jorgenson (1990), once president of the Econometric Society, concludes 'more positively' to dictatorship:

"The classic result of social choice theory is Arrow's (...) impossibility theorem, which states that ordinal noncomparability of individual welfare orderings implies that a consistent social ordering must be dictatorial, corresponding to the preferences of a single individual."

Not everybody falls for dictatorship. The impact of the *AGV* generally comes from the fact that people find themselves, either from moral obligation or from reasonableness, wanting the impossible. And many simply stay in that fixture.

Note the subtlety in that fixture. The impossibility is logical and not just empirical. An example may help. Let me confide that I want to found a new university on the island of Crete. However, I am not that rich, so I want something impossible. This however does not put me into a fixture, since I am used to the fact that I cannot afford some things that I want. However, the Arrow general view concerns a logical impossibility, which is something quite different.

We can usefully recognise:

reasonable = rational & realistic

Reasonableness is the intersection of rationality and empirical realism. Nonexistence may derive from empirical circumstances or from logical impossibility. Irrationality however is always unrealistic. Inconsistency cannot *exist*, in the true empirical sense. For example a round square cannot exist. The nonexistence of the Arrowian constitution similarly derives not from empirical reality but from logical necessity.

Given the *AGV*, the question arises what the reasonableness and moral presumptions of Arrow's claims actually are. Are these claims as strong as conjectured ?

My position is as follows:

1. As has been said on 'round tables', it is not rational to postulate inconsistent properties. People involved in a learning process may indeed make inconsistent assumptions. However, once the inconsistency is discovered, it is no longer considered to be rational to adopt those assumptions. People may enjoy 'roundness' and 'squareness', but having both simultaneously is seen to be inconsistent, even inconceivable, and hence unreasonable. The Arrowian properties are unreasonable in the exactly same manner. Arrow's pitfall is to confuse the learning process, his context of discovery, with real world applications by educated people.
2. Similarly, one cannot be morally obligated to a logical impossibility. Hence Arrow's properties are morally undesirable.

These points will be clarified below.

Note that people have in practice rejected some of Arrow's properties. Even those scholars who seem to accept the general claim *AGV*, accept, a fortiori, the implied inconsistency, and thus in practice drop some assumptions to cope with the real world. Unfortunately, however, the literature has not converged to some agreement on which properties are best to drop. The position of this paper will be to forward the proposition that the Arrow axiom of Pairwise Decision Making (formerly known as the Independence of Irrelevant Alternatives) is the culprit to kill. It is a bad axiom for rational collective decision making, since it appears to be incongruent with that very notion itself.

In the following we develop the concepts, give a short proof and discussion of Arrow's Theorem, construct the argument against the claims, reappraise the literature, and conclude.

Basic concepts

Please note that we will have to redefine some symbols for this chapter only.

Let X be the commodity domain. An element in the commodity domain can be called an item or a candidate. An agent is a compound of various properties such as utility, wealth etcetera. Let S be the set of possible compounds on X . With n agents, our interest concerns the function $c: S^n \rightarrow S$, which maps the society into an aggregate compound. This is generally called the 'Arrow type of social welfare function' or simply a constitution.

A constitution differs from the 'Bergson-Samuelson type of social welfare function' (SWF) - and the latter is defined directly over X as $SWF: X \rightarrow [0, \infty)$.

Arrow's Theorem concerns Social Welfare Function Generating Mechanisms (SWF-GMs) like the c above. Thus, a constitution can be

seen as a mechanism that uses the population as input and generates a SWF that orders all elements in the commodity space. This can be compared to a Social Decision Function (SDF) that selects only one element, namely the best of a budget set. This can be weakened further by considering preference orderings instead of functions. Constitutions generally associate better with SDF-GMs since parliaments generally don't care ordering all proposals. However, these concepts can be translated into each other via varying the budget set. Since the SWF is the conventional concept in economics, the word "constitution" can remain associated with a SWF-GM.

It suffices to restrict S to preference orderings. These orderings satisfy reflexivity, transitivity and completeness. It is important to add that there is no cheating. Let R denote normal preference, P strict preference, and I indifference. When there is no confusion, we can also use the symbols \leq , $<$ and $=$. A suffix denotes an individual preference, otherwise it is the aggregate. An element in S^n is called a *profile*, and $R = c(R_1, \dots, R_n)$.

There are the following Arrowian axioms:

- AWP the weak Pareto principle
- AU universal domain (wide ranging preferences)
- AD no dictator

$APDM$ pairwise decision making (the axiom f.k.a. independence of irrelevant alternatives)

$$a \quad AWP \ \& \ AU \ \& \ AD \ \& \ APDM.$$

The Arrow Theorem can be expressed in various equivalent logical forms:

- $AT \quad a \Rightarrow falsum$
- $AT' \quad a \Rightarrow \sim a$
- $AT'' \quad \sim a$
- $AT''' \quad (AWP \ \& \ AU \ \& \ APDM) \Rightarrow \sim AD$

with *falsum* a contradiction or falsehood and \sim the negation sign. If something leads to a contradiction, then we conclude to the falsehood of the assumptions themselves.

☪

There is a Kantian distinction between technical, pragmatic and moral (categorical) imperatives. Utility, as commonly regarded by economists, likely is of the pragmatic kind. Interestingly, theorists on morality have developed something called 'deontic logic', which appears to give many similar results as economic theory. Deontic logic however applies to *propositions* and not to *commodity domains*. It is possible, though, to integrate all these kinds of preferences into an integral utility index, when we replace a point x in the commodity domain by a statement "The state of the world is x ". This integral utility index likely would be lexicographic, in that some moral and constitutional issues might dominate pragmatic results in the commodity domain. Thus, while we would use the same symbols R , P and I , we would need to look into the structure of the index to find the Kantian distinction as made by the particular agent. We conclude that we can usefully introduce and apply some terms from deontic logic. Define:

$Ap \Leftrightarrow (\sim p \leq p)$ means that p is allowed (at least as good as $\sim p$)

$Op \Leftrightarrow (\sim p < p)$ means that p is a moral obligation (one ought to p)

An exemplaric deontic result is:

$$Op \Leftrightarrow \sim(A(\sim p))$$

Deontic logic allow us to translate:

$$AMC = Oa$$

The use of deontic logic allows a forceful restatement of Arrow's difficulty in social choice:

$$Oa \ \& \ \sim a$$

☪

Let us consider some more properties of morality and deontic logic.

The gap between Is and Ought (*Sein und Sollen*) means the rejection of $\forall p \ p \Rightarrow Op$ ('If something is, then it should be like that') and, in principle, $\forall p \ Op \Rightarrow p$ ('what ought to be, is achieved').

Note what this actually means. A statement p has a truthvalue 1 (true)

or 0 (false), depending upon the state of the world. A statement Op has a 'truthvalue' 1 (ought) or 0 (not-ought) depending upon one's preferences. Applying the logical calculus for the propositional operators $\Rightarrow, \sim, \vee, \&$ thus is a mental exercise, where empirical and preferential statements are first given the common denominator of 'accepting as valid'. Also, it may be that in one case both p and Op are accepted, but the rejection of $\forall p p \Rightarrow Op$ means that it is rejected as a *rule*. [105]

Moral consistency is reflected in the Deontic Axiom:

$$DA \quad \forall p, q (Op \& (p \Rightarrow q)) \Rightarrow Oq$$

There is some discussion between moral theorists whether DA really holds. It may be felt that the logic is not very compelling for empirical relations of dubious causality. However, if $p \Rightarrow q$ reflects a logical truth, then DA is commonly accepted.

☪

On reasonableness, it seems a bit better to attach the properties to the agents rather than to the propositions or commodities. Useful axioms then are:

AF feasibility, X is the budget set (rather than the whole space)

ARe agents are realistic (they only consider feasible options, accept AF)

I thus agree with Arrow's 1950 statement: "My own feeling is that tastes for unattainable alternatives should have nothing to do with the decision among the attainable ones; desires in conflict with reality are not entitled to consideration." Thus, also, when one point is (socially) most preferred, it is the one consumed.

☪

The most complex property seems to be good old *rationality*. It appears that we better introduce the information set or knowledge base $I(.)$ and state the condition that it must contain the Arrow Theorem. Then:

ARa agents are rational (they accept logic, [106] have a preference ordering, are morally consistent (DA), and are educated on Arrow's Theorem ($I(\sim a)$))

The $I(\sim a)$ condition is a novel aspect, that, however, should not come as a surprise, given what we said in the introduction. There is a difference between a learning process and a result. In a common classroom or used-car-salesman strategy, people are goaded into buying some axioms as reasonable and attractive, and then burn themselves, which teaches them. This may be called rational from the viewpoint of learning. This paper however concentrates on the after-learning-rationality, the kind of rationality that makes learning so worthwhile.

How does Arrow's original approach relate to the inclusion of $I(\sim a)$? Arrow (1950, 1951, 1963) has no incorporation of learning - though he later has written on 'learning by doing' - so it might be that he assumes standard economic rationality. If that would be perfect foresight, then $I(\sim a)$ is implied. However, it is better to hold that Arrow in that period discussed constitutional choice *for* agents and not *by* agents. The choice for people then is made by some algorithm or calculating machine. His axioms do not describe educated people involved in constitutional choice. Alternatively put, another new result in this chapter is the widening of the scopes of utility and rationality to the inclusion of knowledge about the constitutional process itself. In that sense the original Arrowian axioms can be called incomplete. Alternatively, if the idea is that these axioms concern educated people, then there is a hidden inconsistency, in that reasonable agents are assumed to regard inconsistent axioms as reasonable. [107]

☪

Hence:

$$ARC = ARe \& ARa$$

Restatement of Arrow's Theorem

It appears very useful to discuss the example given by the Marquis de Condorcet 1785. Sen (1970) gives a simple example that appears to be presented first by Nanson 1882. A similar example is reproduced in Table 12, and I will refer to it as "the Condorcet case". There are three parties and three topics A, B and C on ballot, and the numbers of seats and the preferences are such that, with pairwise voting

and a majority rule, a cycle results: $A < B < C < A$.

Table 12: Condorcet 1785

Party	Seats	Topics ordered by preference			Pairwise vote						
		Low	Mid	High	A	B	B	C	C	A	
Red	25	A	B	C		25		25		25	
Green	35	C	A	B		35		35		35	
Blue	40	B	C	A	40			40		40	
Total	100				40	60		35	65	25	75

$B \quad C \quad A$

It is, in all clarity, not that easy to aggregate votes on more than two topics. [108] For two topics one can indeed ask for pro and contra, and find a majority (and occasional ties, for which exist tie-breaking rules). For two topics one can indeed ask for pro and contra, and find a majority (and occasional ties). For more topics, votes will scatter across the topics, and there will often be no clear majority. Therefore, pairwise voting is a good strategy to get the required information on the preferences. However, pairwise voting apparently also causes problems. So, basically, the search is for a strategy without such problems. And that is, basically, also the suggested value of Arrow's Theorem: that it states that there would be no such good strategy.

However, in this Condorcet example, we may clearly conclude that the cycle primarily means that there is a tie. The situation is in a deadlock, and the group, as a collectivity, is *indifferent*. That there are indifferences or ties, is nothing special. Standard economic analysis allows agents to be indifferent (we even draw indifference curves), so groups should be allowed to be indifferent too. In Condorcet's example, indifference is even a logical choice, since when we assume something else, then we quickly run into difficulties.

There is the famous case of Buridan's Ass (AD 1358). A donkey stands between two equal stacks of hay, at equal distances. He cannot decide which stack to take, and dies of starvation. The upshot of this parable is that rational beings can devise a decision. Constitutions generally state what happens when there are ties. Commonly the Status Quo persists. (This may happen even if it was one of the topics under ballot, and apparently was rejected at that stage.) Alternatives are that the chairman decides, or points are (re-) negotiated, and one can use dice.

It is important to see the difference between *voting* and *deciding*. In two stages, the chairperson first lists the votes, and then only secondly gives the decision with a tick of the hammer. Table 12 essentially gives a voting field, and no decision yet. There is no inconsistency as long as we record these results as voting scores, for example "*B* has more votes than *A* in a pairwise comparison". There only arises an inconsistency when we change this into a preference, i.e. decide that "*B* is better than *A*". There are additional rules that translate the field into a unique decision. Part of paradoxical element in voting derives from confusing voting and deciding.

We can use Condorcet's example to give a short proof of Arrow's Theorem, restricting our attention to majority voting.

Proof: The group decision in the Condorcet case is indifference, so that $B = C$. Under the axiom of universality we can look at various preference *profiles*, of which Condorcet's example is only one. Now regard the adjusted profile such that the preferences on *B* and *C* remain the same, but the preference on *A* drops to the lowest position. The new profile thus is $\{A < B < C, A < C < B, A < B < C\}$. Since the preferences on *B* and *C* have not changed, the APDM outcome on *B* and *C* should be the same. Majority voting now however results into $B < C$ which differs from $B = C$. Contradiction. Thus there is a counterexample to the axioms. So the axioms are inconsistent. **Q.E.D.**

The merit of this short proof is that it clearly shows the awkwardness of the APDM. In the case of Condorcet's example the conclusion $B = C$ is a sound decision, and in the case of the adjusted example the conclusion $B < C$ is sound too. That preferences outside of the pair *B* and *C* have changed is *vital* to the group decision, since the shift helps a change from clear indifference to clear preference. The preferences on other topics are quite relevant, and not 'irrelevant'. APDM excludes vital information about the preferences - to be precise: it destroys information

that exists - and it should come as no surprise that paradoxes and inconsistencies arise. The *APDM* is incongruent with the notion of group decision making. Perhaps an individual can exclude information about other topics, but a group cannot. (Or a brain that works as a group cannot.) It is a surprise that *APDM* has not been killed right in 1951.

A note on the name of APDM

Arrow (1951, 1963) introduced an axiom "Independence of Irrelevant Alternatives" (*AIIA*) that has caused much misunderstanding. That axiom here has been baptised the "Axiom of Pairwise Decision Making" (*APDM*). Thus the axiom remains the same, only the name is different. The new name is much clearer about what the axiom really means in normal English.

Since the name "IIA" is so entrenched in the literature, this change of name requires some explanation. The explanation is along the lines:

- There is the distinction between voting and deciding.
- Items that cause cycles cannot be called 'irrelevant' for decision making.
- The criterion to separate the relevant items from the irrelevant ones is rather the budget and is not necessarily found in pairwise voting for all items.

Arrow's axioms on using the whole commodity domain and universal preferences introduce the possibility that we might also be obligated to consider farfetched items. Arrow introduced the *APDM* to limit this effect again, since it allows that a decision on our current issues can be taken independently from other farfetched possibilities. It is reasonable that people neglect farfetched possibilities. Thus Arrow on one hand opens the door wide for such farfetched possibilities, and on the other hand introduces a strict condition that kills the relevance of this. The whole looks reasonable, since people in fact neglect farfetched possibilities.

Yet, the whole does not conform with the practical situations in Parliaments, where the problem is defined for existing voters and where the issues on table are given by the budget set.

Thus, (a) the notion of 'irrelevance' is dealt with by considering the budget set, (b) the axiom can be named after what it properly does: pairwise decision making.

If we want to deal with possibly farfetched preferences of some citizens, which is the moral meaning of the axiom of universal preferences, then we should work towards practical procedures that work. Assuming inconsistent axioms is not a good way to deal with that moral question.

cg

The following sections use formal logic.

A lemma

Lemma A.I: *AF* implies that a constitution p satisfies the property $Op \Rightarrow p$.

First proof: *AF* means that desires (Op) in conflict with reality ($\sim p$) are not entitled to consideration. But $\forall p \sim (Op \ \& \ (\sim p))$ is equivalent to $\forall p \ Op \Rightarrow p$. **Q.E.D.**

Second proof: We already concluded that the most preferred point (Op) would also be the chosen point (p). Thus $\forall p \ Op \Rightarrow p$. (If the point is not preferred, then the implication is true *ex vacuo*.) **Q.E.D.**

Discussion: We have enlarged the commodity domain with constitutions, and hence the axiom of feasibility becomes a bit stronger. The extension itself is rather weak, since we only extend on consistency (and not empirical validity). Our criterion is as that a reasonable society would stick to its rules. The gap between Is and Ought still exists in principle, but can in practice be bridged by the human effort to attain one's ends.

Rejection of the Arrow Moral Claim (AMC)

Theorem A.1: For a reasonable society, the *AMC* is invalid.

First proof by rationality & moral consistency (DA): Assume Oa . But $a \Rightarrow \sim a$, and with *DA* we get $O\sim a$. But this gives a preference inconsistency $Oa \ \& \ O\sim a$. Hence $\sim Oa$. **Q.E.D.**

Second proof by rationality & moral consistency (DA): Assume Oa . Since $a \Rightarrow falsum$ we find $Ofalsum$. Thus for some p_0 we have $O(p_0 \ \& \ \sim p_0)$. But this means $Op_0 \ \& \ O\sim p_0$, and that is a preference

inconsistency. Hence $\sim Oa$. **Q.E.D.**

First proof by realism (AF): Assume Oa . By the lemma $\forall p Op \Rightarrow p$ we find a . But then we have $\sim a$ & a , which is an inconsistency. Hence $\sim Oa$. **Q.E.D.**

Second proof by realism (AF): Since $\sim a$ and above lemma $\sim a \Rightarrow \sim Oa$, hence $\sim Oa$. Thus the axioms are not morally desirable either. **Q.E.D. Note:** $q \Rightarrow p$ is equivalent to $\sim p \Rightarrow \sim q$, and we may take $q = Op$.

When the axioms would be morally desirable, then the derived contradiction would be morally desirable - but nobody can be asked to do the impossible. Hence the axioms are not morally desirable. This is a seemingly simple reasoning scheme, but destructive to the accepted view.

Rejection of the Arrow Reasonableness Claim (ARC)

Theorem A.2: For a reasonable society, the *ARC* is invalid.

Proof: Given *AF*, infeasible choices are not considered. Since $\sim a$, apparently a is not feasible, and the Arrow constitution is not reasonable. So it is invalid that the axioms would be reasonable. **Q.E.D.**

Discussion: As we stated above, we have enlarged the commodity domain with constitutions, and hence the axiom of feasibility becomes a bit stronger. The extension itself is rather weak, since we only extend on consistency (and not empirical validity). But the conclusion is strong. No reasonable society in its right mind would want to accept Arrow's axioms as its constitution. Supposedly at a chaotic Boston Tea Party a constitution $c = a$ might be tried, but pretty soon rational people would see that they should make another constitution, for otherwise the situation will remain chaotic, and the Tea Party will not go down into history as a notable event.

Note that Arrow adopts feasibility, but also wants to impose infeasible conditions.

When Arrow's axioms would be reasonable, then they would have to be consistent as well. However, they are inconsistent. Thus they are not reasonable. This seems a rather simple scheme of reasoning, but it destroys the impact of the Theorem.

For the axioms, there is the subtle difference between 'reasonable' and 'seemingly reasonable when considered by itself'. The following is a good analogy. For a bicycle we want round wheels for when it rides. For a bicycle we also want square wheels, so that it does not fall when it stands still. But there are no round squares ! Ergo, conditions that seem reasonable by themselves, create something impossible and decidedly unreasonable when combined. To conclude 'there is no good bike' would however be absurd. Admittedly, it is a good teaching method to first convince students that something would be reasonable, and then have them derive a contradiction. As with the buying of a bad second-hand car, the students learn to be careful, and they learn a respect for science and the value of modesty. This teaching method however overshoots when people remain believers of the reasonableness of the assumptions - as apparently happened with the assumptions of Arrow's Theorem. A paradox is only a seeming contradiction. Thus there must exist a system that we are willing to accept as the optimal one.

Many mathematicians have been sensitive to the distinction between 'reasonable' and 'seemingly reasonable when considered by itself', but the literature also abounds with instances where this distinction is not applied with sufficient care. Part of the accepted view thus is a case of bad communication of the incrowd with the larger public. (Given above quotes, the incrowd however might be small. Quis custodet custodes ?)

Selection of the culprit axiom.

The selection of the culprit axiom is straightforward. We order the axioms by preference, for example $AD > AWP > AU > APDM$. From $\sim a$, we conclude that we have to drop one of the axioms. We drop the least preferred one. My discussion on Condorcet's example should generate support for the rejection of *APDM*. Basically though, scientists can only advise on preferences, and the proper decision is up to the body politic.

Lemma A.II: If all agents have $a > APDM$ then, with *AWP*, society has $[AU, AWP, AD] > APDM$. Note: here $[x, y, z]$ means the unordered set.

Proof: *obvious*.

Discussion: When all people put *AU*, *AWP* and *AD* in any individual order, but all would have *APDM* below these, then society can reject

APDM unanimously. In fact, the condition *AU* might as well be regarded as part of the *definition* of a SWF-GM, and similarly, *AWP* could as well be regarded as part of the *definition* of the notion of collective preference. So the real choice concerns *AD* and *APDM*, or between dictatorship or not. Here a selfish dictator and his associates would have $\neg AD > APDM > AD$. The Jorgenson quote suggests his preference for a benevolent and non-selfish dictatorship, but, also since such dictatorships tend to turn sour, my impression is that he would eventually be an associate of a real dictator. Most likely, he did not understand the situation when the quote was printed.

Note that ordering the axioms means that the deontic predicate *O* is not homogeneous. This means that deontic logic may be more related to preference theory than deontic theorists think.

Examples of consistent constitutions

Consistent constitutions violate one of the axioms of Arrow's Theorem. Violating one of these axioms is to be considered useful for reasonableness and morality, rather than the reverse. (That is what we proved above.)

One general feature is a Status Quo that persists when there are ties.

One example already has been mentioned in the discussion of the Condorcet problem. With majority voting, a cycle means indifference, and there are various ways to solve ties. One possible solution is the persistence of the Status Quo.

Another example constitution is the "Pareto-Majority" rule. One first selects all Paretian improvements from the Status Quo. That is, those points where some advance while nobody loses. There may be more Paretian points, such as $B > A$ and $C > A$, with the Status Quo as *A*. When there is no Paretian order between *B* and *C*, then it suffices to decide on these points by simple majority. Of course, with more than two points, majority voting can result into cycling, but that again means indifference, which could be settled by dice, by the chairperson, or by other creative ways.

See my home page and The Economics Pack for implementation of these rules in the program *Mathematica*. Little helps so much as a trying it out for yourself.

A reappraisal of the literature

Our discussion arrives at a conclusion that differs from the literature, and thus warrants a reappraisal of that literature. This reappraisal is not the topic of this paper, but some examples are useful.

(1) Note that the Tobin quote above was misleading. The problem with 'unborn generations' should not be mixed up with the Arrow difficulty. The Tobin problem actually can have a rather simple solution. It are the preferences of the currently living that matter, and what they prefer for the future unborn (which can also be based on a forecast of such preferences). These future preferences cannot logically be included, since they don't exist yet.

(2) Arrow 1951 also stated:

"If consumers' values can be represented by a wide range of individual orderings, the doctrine of voters' sovereignty is incompatible with that of collective rationality."

This is clearly inaccurate. The statement suggests that we have to adopt Arrow's axioms, while the sensible thing is to reject these axioms and to adopt both voters' sovereignty and collective rationality.

(3) One of the more interesting points made here is the distinction between the learning process and the end result. How should Arrow's result be presented in the future? Is it possible to maintain the teaching strategy to call the axioms 'reasonable', then have the students get into a fixture, and then let them find a way out? It is good teaching practice! However, in a Palgrave meant for a wider audience (or a general encyclopedia that even might be read by dictators), it might be improper to call Arrow's axioms 'reasonable'. It should be 'seemingly reasonable' at the least.

Note that the phrase then becomes less enchanting:

'there is no social choice mechanism which satisfies a number of seemingly reasonable conditions'.

(4) I am a bit shocked by Mueller's (1989, p406-407) discussion of Arrow's general view. One would expect a more critical attitude, but finds instead:

"The Arrow and Sen theorems (...) raise fundamental questions about the possibility of establishing collective choice procedures satisfying minimally appealing normative properties (...) But the negative side should not be overemphasized. We have suggested that both sorts of paradoxes might be avoided with the use of cardinal, interpersonally comparable utility information. Arrow explicitly eschewed the use of such information, and the independence of irrelevant alternatives [thus Pairwise Decision Making / TC] axiom was imposed to rule out voting procedures that might make use of such information (... But it) is possible that the citizens may be trusted to make these comparisons in an ethically acceptable way."

Well, interpersonal comparison of course occurs, minimally, when we assign votes to people, assign rights to put topics on ballot, and the like. So interpersonal comparison is not as bad as many economists seem to think. But my solution to Arrow's difficulty does not rely on cardinality and cardinal comparison. So, disappointingly, Mueller both accepts the idea that Arrow would cause 'questions' about the possibility of social choice, and he comes with a wildly wrong conclusion. This is supposed to be a modern textbook !

(5) What is important, is that the development of economic theory and the development of real economies have been hindered by the confusion generated by the standard explanation. Where decision makers were divided, some interested in social welfare and others not, the latter group was provided with decisive gunpowder - and beware of people who have an ideology and even wield a mathematical theorem to prove their lunacy. Generations of students have been taught by Nobel Prize laureats that research into social welfare would be subject to impossibilities. Creative energy has been directed to enlarging the impossibilities rather than to devising structures that might improve practical situations. Practical research into social choice functions and parameters has been aborted, all with reference to a misunderstood theorem !

Economic research also leads to a suggestion of a constitutional amendment, see Colignatus (1996b) and the appendix. I hope that this present chapter helps to clarify that this kind of research is a useful type of economics.

(6) This analysis also clarifies a confusion about the relation of constitutions to the SWF. While many economists argued that constitutions could not be reasonable or morally acceptable, they did accept the Bergson-Samuelson SWF, even though the latter was derived from the former - and nobody seems to care about this inconsistency. Which is now removed, since the properties of the constitution are projected into the SWF.

(7) It is relevant to note that I gave this analysis earlier, in Colignatus (1990c, 1992a). This chapter is almost 99% the same as 1997b, and a rephrasing of the main principles. I have had no success so far in getting a publication, neither at the CPB nor in a journal. [109]

Conclusion

Arrow's Theorem has given some problems in the literature, see the quotes above. We have achieved the following solution:

- There is more clarity now, by the distinction between the theorem proper ($a \Rightarrow \text{falsum}$), the moral claim (Oa) and the claim on reasonableness (AF and $I(\sim a)$).
- The arguments above on rationality and morality have a destructive character since they reject the accepted view. In another perspective they are constructive, since they allow the formalisation of (meta) notions, and bring these back into mathematics again (notably the voting on constitutions).
- From a mathematical point of view, the Arrow axioms are incomplete for decision making in a reasonable society.
- It has been shown that the *APDM* is undesirable. Dropping *APDM* is not a sad state of affairs, as is sometimes suggested in the literature, but a sign of understanding group decision making.
- The Arrow axiomatisation does not capture the truly desirable properties required for a constitution, both by incompleteness and *APDM*.
- There are detail results, such as the distinction between voting and deciding, the integration of preference theory and deontic logic, and a proof of Arrow's Theorem that shows clearly the abuse by *APDM*.
- We have given examples of consistent constitutions that many might regard as optimal.

Addendum: Sen's restatement in "Development as freedom"

Sen (1999a:250-253) contains a short summary discussion on his view on the

Theorem. First I quote him and then give my comment. Sen states:

“The Arrow Theorem does not in fact show what the popular interpretation frequently takes it to show. It establishes, in effect, not the impossibility of rational choice, but the impossibility that arises when we try to base social choice on a limited class of information.”

This is not correct. Using the information provided by pairwise voting results, we can decide to a tie (deadlock, indifference) when such might arise. It is the adoption of the *APDM* axiom that, wickedly, turns this indifference into an inconsistency. The *APDM* does not mean lack of information, it only corrupts the information that exists.

“At the risk of oversimplification, let me briefly consider one way of seeing the Arrow theorem. Take the old example of the “voting paradox,” with which eighteenth-century French mathematicians such as Condorcet and Jean-Charles de Borda were much concerned. If person 1 prefers option x to option y and y to z , while person 2 prefers y to z and z to x , and person 3 prefers z to x and x to y , then we do know that the majority rule would lead to inconsistencies. In particular, x has a majority over y , which has a majority over z , which in turn enjoys a majority over x . Arrow’s theorem shows, among other insights it offers, that not just the majority rule, but *all* mechanisms of decision making that rely on the same informational base (to wit, only individual orderings of the relevant alternatives) would lead to some inconsistency or infelicity, unless we simply go for the dictatorial solution of making one person’s preference ranking rule the roost.”

Locating the problem in the informational base is erroneous. Clearly, majority decision does *not* lead to inconsistencies, for it is the use of the *APDM* axiom that does so - and we don’t need it for majority decisions. The Arrow Theorem does *not* show that there are inconsistencies for *all* mechanisms - we namely can use mechanisms without *APDM*.

“This is an extraordinarily impressive and elegant theorem — one of the most beautiful analytical results in the field of social science. But it does not at all rule out decision mechanisms that use more — or different — informational bases than voting rules do. In taking a social decision on economic matters, it would be natural for us to consider other types of information.”

I don’t know about “extraordinarily impressive and elegant”. Condorcet came up with his paradox, as earlier people came up with paradoxes when dividing by zero, as Bertrand Russell had his set-paradox, and as the Cretian Epimenides said “All Cretians are liars.” Arrow’s Theorem solves the Condorcet paradox by showing that we must not use *APDM* - though Arrow apparently did not realise that. The theorem is basic, and we must be glad that we have it, as *APDM* apparently can cause a lot of confusion, as the last 50 years have shown.

“Indeed, a majority rule — whether or not consistent — would be a nonstarter as a mechanism for resolving economic disputes. Consider the case of dividing a cake among three persons, called (not very imaginatively) 1, 2, and 3, with the assumption that each person votes to maximize only her own share of the cake. (This assumption simplifies the example, but nothing fundamental depends on it, and it can be replaced by other types of preferences.) Take any division of the cake among the three. We can always bring about a “majority improvement” by taking a part of any one person’s share (let us say, person 1’s share), and then dividing it between the other two (viz., 2 and 3). This way of “improving” the social outcome would work — given that the social judgment is by majority rule — even if the person thus victimized (viz., 1) happens to be the poorest of the three. Indeed, we can continue taking away more and more of the share of the poorest person and dividing the loot between the richer two—all the time making a majority improvement. This process of “improvement” can go on until the poorest has no cake left to be taken away. What a wonderful chain, *in the majoritarian perspective*, of social betterment!”

Remember that Sen writes this book for a general audience of economists who will not have gone deeper in social choice theory. Though Sen now relates basic truisms, his reasoning nevertheless is a bit off. Indeed, Western democracies tend to have property rights and a “status quo” rule, and a Madisonian philosophy that democracy actually exists to protect the minorities. We use all kinds of additional information, in order to settle problems of fairness and equity. Thus the majority rule is not suggested for the raw form that Sen uses as an example. Then, crucially, when Sen suggests that this example clarifies that we must use more information to solve the Arrow paradox, then this is a non-sequitur. His argument becomes seductive, since the reader is seduced into thinking that, indeed, we use more information. But the truth is that we use this additional information to solve equity matters, and not to solve the Arrow inconsistency.

“Rules of this kind build on an informational base consisting only of the preference rankings of the persons, without any notice being taken of who is poorer than whom, or who gains (and who loses) how much from shifts in

income, or any other information (such as how the respective persons happened to earn the particular shares they have). The informational base for this class of rules, of which the majority decision procedure is a prominent example, is thus extremely limited, and it is clearly quite inadequate for making informed judgments about welfare economic problems. This is not primarily because it leads to inconsistency (as generalized in the Arrow theorem), but because we cannot really make social judgments with so little information.

“Acceptable social rules would tend to take notice of a variety of other relevant facts in judging the division of the cake: who is poorer than whom, who gains how much in terms of welfare or of the basic ingredients of living, how is the cake being “earned” or “looted” and so on. The insistence that no other information is needed (and that other information, if available, could not influence the decisions to be taken) makes these rules not very interesting for economic decision making. Given this recognition, the fact that there is *also* a problem of inconsistency—in dividing a cake through votes — may well be seen not so much as a problem, but as a welcome relief from the unswerving consistency of brutal and informationally obtuse procedures.”

Sen is aware that his reasoning is not strict (vide his use of “primarily” and “*also*”) but, still, he makes the suggestion, which is erroneous.

Indeed, the spirit of “impossibility” is not, I believe, the right way of seeing Arrow’s “impossibility theorem.” [footnote] Arrow provides a general approach to thinking about social decisions based on individual conditions, and his theorem—and a class of other results established after his pioneering work — show that what is possible and what is not may turn crucially on what information is taken into effective account in making social decisions. Indeed, through informational *broadening*, it is possible to have coherent and consistent criteria for social and economic assessment. The “social choice” literature (as this field of analytical exploration is called), which has resulted from Arrow’s pioneering move, is as much a world of possibility as of conditional impossibilities. [footnote]”

This quote just repeats the error - and adds a string of perceptions to sweeten the cake. The footnotes are references to his “Collective choice and social welfare”, his Handbook contribution and the Nobel lecture, Sen (1999b), and add no news, for us, to the essence discussed here. Indeed, the obviously relevant Nobel lecture just repeats the error.

Hence, Sen basically does not understand the problem. I do value his work on social choice since it was a useful guide to me in making Arrow’s result accessible, and in seeing the various perspectives of it. As Newton is reported to have said: “Standing on the shoulders of giants, we can look further.” I cannot wait till Sen writes me that he enjoys my solution !

Addendum: Mas-colell, Whinston and Green, “Microeconomic Theory”

Andreu Mas-colell, Michael Whinston and Jerry Green ’s 1995 “Microeconomic Theory” is just wonderful. A great book. Generally speaking, though, since they erroneously write: “Either we must give up the hope that social preferences could be rational in the sense introduced in Chapter 1 (i.e. that society behaves as an individual would) or we must accept dictatorship.” (p780). And the subsequent discussion indeed leads the student in the bogs and misdirections so typical of 20th century ‘social choice theory’. The math is OK, but concerns something like the question of how many angels can dance on a pin’s head - and the whole induces the student to become wary of social decision making. (To be sure: I appreciate the other qualities, and have used the book for sections of my Economics Pack.)

35. Without time, no morality

Summary

Theory shows that voting is subject to paradoxes, while it also appears that a voting result is caused as much by the procedure as by the voters’ preferences. From a moral point of view, the choice of the procedure then is the major issue. A key insight is that morality presumes time. In a static world everything is given and there is no place for individuals who have to ponder their moral choices. The real world is dynamic however and the most challenging voting paradoxes concern budget changes. The paper develops a new “Borda Fixed Point” mechanism that provides a better protection to surprises by such budget changes. Under dynamics, Donald Saari’s argument on symmetry is less convincing.

Introduction

The currently accepted view is sometimes expressed as that 'there is no ideal voting scheme'. The former chapter destroyed that view. There is no mathematical reason to think that such an ideal cannot exist. Since Arrow's axioms must be rejected, they do not form an ideal. An ideal still can exist, but apparently it is different than originally thought. Perhaps people have different ideals, but then the non-existence of a common ideal derives from empirically different opinions and not from mathematical reasons. Since people can benefit from co-operation, they can still aspire at a scheme that all can agree upon.

Above analysis does not answer the positive question yet what would be a generally good system. The main point here is that everyone should determine this for oneself. Theory can only help to remain consistent. The following is a suggestion for a scheme that is consistent and that could appeal to many.

Control of natural forces in the social process

One important idea is that time plays a role. The basis for this idea is that, abstractly, morality presupposes time. Without time there would be no morality. In a static world everything is given, and there is no place for an individual who has to ponder his or her moral choices. As economists, we can draw static utility functions and isoquants, but those are abstractions, and they might distract from the real moral problem. The moral problem is that *now* a decision has to be made while the consequences appear *later*. Afterwards, everything can be explained deterministically (which is the meaning of 'explanation'), and by hypothesis, determinism will also hold for the future. Yet, in the mean time forecasts are imperfect, there is fundamental uncertainty, and that creates the possibility of morality (or the illusion of morality).

Economic science is intended to help explain reality. In this reality, we see an evolution of human beings in a social process of natural forces. The basic concept is power, in a continuous process, so that the basic approach uses ratio scales and cardinal utility and not ordinal scales. Other assumptions than cardinality enter the discussion *only* when the group wants to control power, and for example introduce democracy. A common notion is that economists reject cardinality and interpersonal comparison of utility. However, the concept of 'one person, one vote' actually imposes some interpersonal comparison of utilities. Also comparing orderings of preferences implies some comparison of utilities. The proper perspective is rather that cardinality is deficient since people can cheat about their preferences (at least in the current state of technology). The major argument for ordinality is that it limits the room for cheating. If people could not cheat, interpersonal comparison likely would be much more popular amongst economists. The point that ordinality reduces interpersonal comparison thus seems less relevant than the point that cardinal comparisons are unreliable since people can cheat.

For example, when a family goes on holiday and has the choice between Spain or Greece, then little Robby might exaggerate his preference for Greece and say that he might as well die when Spain is selected. When the aggregation of preferences would be cardinal, such a huge negative weight for one option would certainly block it. Imposing ordinality limits the impact of cheating however. In common textbooks on voting theory, cheating comes in relatively late, but it is more adequate to start right away with that notion. The crucial insight is: Arrow's Theorem and the voting paradoxes are the price that we have to pay in order to limit that impact of 'strategic' voting behaviour.

Arrow's original question whether there could not exist a generally good voting mechanism remains a valid question, though. As history has shown, mathematicians are proficient in identifying paradoxes and in deriving new impossibilities, and one will not quickly find a suggestion for a generally good system. But it appears that when we consider the issue of time, then a solution tends to suggest itself. To understand this solution, it is useful to first consider three main contenders, i.e. the 'traditional' solutions provided by Plurality, Borda and Condorcet. There are other methods, but their properties are such that they need no consideration here.

Three traditional methods

In **Plurality**, all voters have one vote, and the candidate with the highest number is selected. Note the problems with this method. The criterion of 'highest number' does not imply that the winner must also have more than 50% of the vote. If this is additionally imposed, then this may require more rounds of voting, and then there is the difficult issue whether candidates have to drop out, and if so, how.

Borda's method is to let each voter rank the candidates by importance, then assign weights given by the rank position, to add the

weights per candidate for all voters, and then select the candidate with the highest value. Note that the method appears sensitive to preference reversal, see below.

Condorcet's method is to vote on all pairs of candidates, and to select the one who wins from all alternatives. Note that such a "Condorcet winner" does not need to exist. In that case the margins of winning can be used to solve the deadlock - but this increases the sensitivity to who participates.

The following example is taken from Saari (2001ab). Consider a budget of three candidates A , B and C , and let there be 114 voters. When we neglect indifference and use strict preference only, then with 3 candidates there are $3! = 6$ possible ways of ranking them. Table 13 contains an arbitrary allocation of those voters over such preferences. The highest ranking candidate gets rankorder weight 3, the second gets weight 2, and the least preferred candidate gets weight 1. In the table we can read for example that there are 33 candidates with preference $A > B > C$.

Table 13: Voting example

<i>Number of voters</i>	<i>Candidates and their rank order weight</i>		
<i>Sum</i> 114	<i>A</i>	<i>B</i>	<i>C</i>
33	3	2	1
0	3	1	2
25	2	1	3
17	1	2	3
14	1	3	2
25	2	3	1
<i>Results of the procedures</i>			
<i>Mostly preferred</i>	33+0 = 33	14+25 = 39	25+17 = 42
<i>Borda</i>	230	242	212
<i>Pairs: A vs B</i>	58	56	-
<i>A vs C</i>	58	-	56
<i>B vs C</i>	-	72	42

The different voting schemes result into different decisions:

- 1) **Plurality:** Voters give one single vote to the candidate of their highest preference. For candidate A we consider its column, select the rows with the score 3, and add the associated numbers of voters $33 + 0 = 33$. And so on. Candidate C gets most votes, namely 42.
- 2) **Borda:** The votes are weighted with the rank order weight. De column for A is multiplied row by row with the number of voters $3 * 33 + 3 * 0 + 2 * 25 + \dots = 230$. Candidate B gets most votes, namely 242. (Scores -1, 0, 1 might calculate easier.)
- 3) **Condorcet:** Voting pairwise over A versus B , there are $33 + 0 + 25 = 58$ voters who give A a higher rankorder than B . Etcetera. Candidate A appears to win from both B and C , and then is the "Condorcet winner".

This example shows that A , B and C can *all* be winners, depending upon the method selected. The properties of the methods then are the true issue.

Above still neglects strategic voting. This could be represented by a change in apparent position. How do we evaluate this ? It appears that the Condorcet approach is least sensitive to cheating since in a pairwise vote there is an incentive to express one's true preferences. Pairwise voting however can be unattractive since there need not be a Condorcet winner, or, when one exists, it may conflict with the preference rankings. One way to solve the complexity of choosing between these methods is to compromise by having a run-off election. The two top outcomes of Plurality or Borda are taken and then subjected to a pairwise vote as in Condorcet. There is one final consideration. Simply taking the two 'top outcomes' seems unduly simple, we should consider what these actually are. In France, the election between Chirac, Jospin, Le Pen and others caused Jospin's votes to scatter over all kinds of smaller parties so that he dropped from the race while he was the Condorcet winner of both Chirac and Le Pen. When we are compromising, we should focus on determining the two main contenders.

Borda Fixed point

Let us reconsider the dynamic process that occurs within an economy. We see that under the influence of time, the budget changes continuously. A voting scheme naturally requires that there is a list of candidates, but one cause for paradoxes is that that list is not fixed. For example, in the Borda vote above, B is selected, but if C decides to

withdraw (or gets a heart attack), then we would expect B to remain the winner, but suddenly it is A (see the Condorcet vote A versus B). Remember also the Bush, Gore and Nader case. We could consider a procedure to be better when the choice is less dependent upon changes in the budget.

A way to achieve this is to use the notion of a 'fixed point'. For a function $f: D \rightarrow R$, for some domain D and range R , the point p is a fixed point iff $f(p) = p$. Let us consider this concept for voting.

Let P be the voting procedure, and let $X = \{x_1, \dots, x_n\}$ be the budget with all the candidates. Let the unrefined winner be $w = P(X)$. Let Y be the budget when w does not participate, $Y = X \setminus \{w\}$. Let the 'alternative winner' be $v = P(Y) = v(w)$, i.e. the candidate who wins when the first winner w does not participate. This is not simply the run-off between the winner and the common runner-up, since the selection of the alternative winner requires the recalculation of the preference weights. This alternative winner can be seen as a 'summary' of the opposition to w . The scheme is a compromise since the Condorcet pairwise condition holds for the winner and the alternative winner. While these notions are defined with respect to the unrefined winner, we can generalise this to any winner, and in particular to our optimal winner.

An alternative condition for winning in general is the ability to win from one's strongest opponent. This gives the fixed point condition. Define $f(x) = P(x, P(X \setminus \{x\}))$, which is the general function 'the vote result of x and its alternative winner'. Then w^* is the solution to the fixed point condition $x = f(x)$:

$$w^* = P(w^*, v(w^*)) = P(w^*, P(X \setminus \{w^*\})) = f(w^*)$$

When the unrefined winner w is not a fixed point, i.e. when the unrefined winner $w = P(X)$ appears to lose from v , so that $w \neq P(w, v)$, then the search process can start again from v .

It appears that this fixed point voting procedure reduces the dependence upon budget changes. There can still be a dependence, but it is not as large as without the condition.

In Table 13, the **Borda Fixed Point** winner is A . With B the Borda winner, A is the alternative winner when B does not participate, and B loses from A in a pairwise match; starting the search from A , its alternative winner is B , and A wins from B .

More on this can be found in Colignatus (2001). That book has also been intended as a textbook and it developed *Mathematica* programs for the various voting schemes and data manipulations. Given the complexity of the matter, this working environment has appeared a great advantage.

Relation to Saari's work

Donald Saari (2001ab) showed that Borda's method is the only method that satisfies certain symmetries. His suggestion is that the Borda rule 'therefor is best'. This argument does not convince by itself since 'symmetry' is not by itself a moral category. Dynamics is linked to morality, by the notion that morality presumes time, and thus seems a better angle.

Consider direct symmetry first. Suppose that your preference is $A > B > C$ and that my preference is $C > B > A$. The direct symmetry consideration is that we might both abstain from a vote and stay home, since our preferences strictly oppose each other. Saari noted too that voting cycles can be catalogued under the mathematical concept of rotational symmetry. His subsequent suggestion is that cancellation should hold for *all* symmetries for *all* subsets of voters.

What happens when cancellation of 'rotational symmetry' is applied to subsets? The following is an example by Saari that cancellation isn't trivial then. In Table 14 there are 48 voters, and B is selected by both Borda and Condorcet. In Table 15, 27 voters have been added who have the mentioned rotational symmetry, with 9 for each subgroup. Now Borda still selects B , but Condorcet, and the Borda Fixed Point, select A . In Saari's view, Borda satisfies symmetry, and 'hence' is the better method.

My reasoning is a bit different. First of all, note that I myself have used an argument similar to that of Saari. In my view, the typical Condorcet situation of three preferences $A > B > C$, $B > C > A$ and $C > A > B$ results into indifference rather than an inconsistency, and I use this against Arrow's analysis. So I agree with Saari's view that such votes cancel. I applaud Saari's insight that if you apply cancellation for *all* cycles in *all subsets*, then the logic is to get rid of Condorcet's method and to use Borda's method.

Table 14: Start with 48 voters: Borda B , Condorcet B

	<i>Candidates and their rank order weight</i>		
<i>Number of voters</i>	<i>A</i>	<i>B</i>	<i>C</i>
20	3	2	1
28	2	3	1
<i>Borda weighted total</i>	116	124	48
<i>A versus B</i>	20	28	
<i>A versus C</i>	48		0
<i>B versus C</i>		48	0

Table 15: Add 27 'neutral' others: Borda *B*, Condorcet *A*

	<i>Candidates and their rank order weight</i>		
<i>Number of voters</i>	<i>A</i>	<i>B</i>	<i>C</i>
20	3	2	1
28	2	3	1
9	3	2	1
9	1	3	2
9	2	1	3
<i>Borda weighted total</i>	170	178	102
<i>A versus B</i>	38	37	
<i>A versus C</i>	57		18
<i>B versus C</i>		66	9

Secondly, however, my problem remains that there is the phenomenon of budget changes. Note that Saari's example uses a changing electorate rather than a changing budget. My suggestion is that a change in the electorate would require a new vote, while we would want to avoid that in case of a change in the budget. The Borda method would be best, *only* when the budget would be really given. When it might change, the application of cancellation to *all subsets* becomes doubtful, since subsets change. There is a fundamental uncertainty with respect to the future. Consider the following example. At a specific point in time, the population of a nation is given, and thus the vote for a President has a specified budget: the population. But, uncertainty sets in again, when people may withdraw from the race. Only a few actually run. Hence, we might well want a rule to deal with possible changes in the budget. Hence, it is not logically required that we cancel votes for all possible subcycles (also for candidates who are *not* in the race). Saari is very strong on the argument that when we accept cancellation in one case, then we should do so in all cases. I am more sensitive to the exception: when 'if one, then all' does not hold.

Concerning Table 14 and Table 15, my reasoning is - contrary to Saari - that the added votes cannot be neglected. The argument of rotational symmetry breaks down when we compare a winner with the alternative winner - which is a pair - while rotational symmetry requires a third candidate or more. For the pair, the addition has an effect. When we consider unrefined winner *B* and its alternative winner *A*, then the added votes are in favour of *A* and no longer 'neutral'. While *C* is important since it shows a cycle for a subgroup of voters, another view is that *C* could be neglected since it is not a fixed point. Candidate *C* is a typical example of an irrelevant candidate that can cause a preference reversal in Borda voting. Namely, let us consider Table 15 under Borda voting, and let *C* decide to drop from the race: then *A* becomes the winner. The Borda Fixed Point method has been developed precisely to deal with that kind of preference reversal.

Thus, when you select your voting method then you must choose between the properties exemplified by this case. (1) Borda is subject to preference reversal. In the example of Table 15, when *C* drops out, then there would be switch from *B* to *A*. (2) The Borda Fixed Point method still depends upon the voting field. In this example, when 27 voters drop out, then there is a switch from *A* to *B*.

The choice basically is whether we attach more importance either to the voters or to the candidates. Saari suggests that the candidates are more important, since he cancels the votes of 27 voters and keeps *C* in the race. I would say that the voters are important and that candidate *C* is less relevant. The proper question would be whether the winner is a convincing winner. Of course, *C* can become an important candidate when we add other voters. But then the argument is that those voters count, rather than *C*.

Consider the impact of semantics. While it has been a long standing notion that cycles may also be taken as indifference, so that the votes cancel, Saari now rephrases this as rotational symmetry, and he suggests that acceptance of rotational symmetry implies acceptance of it for all cases and subsets. The label might be a common mathematical

label, but I have a problem with that label in the realm of morality (and the implied universality). Human beings seem to have biological preference for symmetry, and by labelling something as 'symmetry', it becomes more attractive. When discussing the different voting schemes, we should be aware of such effects, and try to focus on what the properties really mean, and we should make a proper distinction between a property that is universal and a property that is dependent upon the situation. Perhaps it might be analysed as the 'mathematical frame of mind' that acceptance of a property for one set also implies acceptance for all other (sub-) sets, but my conclusion is that when we look closer, that there is room for more subtlety. Indeed, it might well be that considerations of symmetry apply to the static situation, but that we need other considerations for dynamics.

Another example for this need for subtlety is that the 'rotational symmetry' argument breaks down on the *status quo* (see below).

Saari has also developed an ingenious way to depict voting schemes geometrically. For 3 candidates, this becomes a triangle, and the different procedures can be calculated from that. It appears that these triangles are a good educational tool. However, my experience is that the computer programs (Colignatus (2001) uses *Mathematica*) are easier to use, since they take away the need for calculations, while they are available for more dimensions and also allow for indifference and not just strict preference. A complex scheme like the Borda Fixed Point also requires more work with the triangle, while in *Mathematica* it is a simple procedure call. It may be noted that above discussion of the Borda Fixed Point method has been simplified by assuming single winners. In practice, there can be ties, complicating the search, and requiring tie-breaking rules.

Pareto

Another consequence of the switch of attention from statics to dynamics is the recognition of a *status quo*.

There appears to exist another wide-spread confusion about 'majority voting'. This idea is that a majority result would still be democratically valid, even if the winning decision implies a real loss for the opposition. The counter-example is when the majority decides that the minority pays \$1 to the majority: this is not necessarily a morally acceptable situation, even though there is a majority. From a moral point of view, each voting scheme should have two rounds: a first round to select the Pareto improving points compared to the *status quo*, and then a second round to select the winner from those Paretian improvements. The majority rule thus can be regarded as only a tie-breaking rule, namely for the deadlock when there are more Pareto improving points. In elections of persons, the status quo can be a vacancy, and in that respect all candidates could be taken as Paretian. But the Paretian pre-condition cannot be skipped in general.

The Paretian condition may require some subtlety. Consider the family choice for a holiday to Greece or Spain, discussed above. If little Robby considers the holiday to Spain to be a deterioration from the status quo of not having a holiday at all, then there is moral argument to say that Spain is not a valid option to take a vote on. However, if it can be established in a first round that going on a holiday is unanimously a good idea, then Robby has to accept a possible majority decision in favour of Spain and against Greece.

One argument against the selection of Pareto improving points is that people might also cheat about these points. This argument is not convincing, since Pareto improvement is in one's own interest. Indeed, little Robby might try to veto Spain by saying that he does not want a holiday, and thus he might be trying to bargain to get everybody to accept Greece. However, this ploy can be prevented by having that first round on having a holiday, since if he really wants a holiday anyhow, then he has to show this then. Careful construction of the voting process thus remains an issue.

A note on cheating

One of the key problems in voting theory is strategic voting behaviour, better known as cheating. In a scheme like Borda, cardinal utility has already been reduced to ordinal utility, so perhaps we should be lenient and allow voters to maximize their utility from the final outcome by manipulating their vote. But our opinion on this does not matter, since the ballot generally is secret and we cannot stop people from voting strategically anyway. In fact, my *Mathematica* programs, Colignatus (2001), contain routines for cheating. These are simple routines that

assume both full information and that others don't cheat, since the mathematics of cheating while assuming that others cheat too is rather complex, especially when nobody has full information about the true preferences. Given all this, one surmises that election results do not reflect the true state.

Thinking about these issues gave me an idea that might be helpful to elicit the true state. Suppose that each voter is informed in advance that there is a probability p that the ranking order that is submitted will be used by the election computer for strategic voting. If the voter submits his or her true ranking, then this is rewarded with probability p to improve the election result for that voter, and much better than the voter can, since the computer knows all submitted rankings. If the voter submits a strategically adapted ranking, then this is punished with probability p namely to improve the election result for that false ranking. Likely there is a specific value of p that would generate the most truthful election result. Unfortunately, I haven't had time to develop this idea.

Conclusion

An election result is 'as much' the result of the procedure as of the preferences. Arrow's Impossibility Theorem is complex and full with paradoxes, but the dependence of morality upon time provides a way towards solution.

There are two key conclusions:

- (1) The Pareto condition for the candidates under ballot should not be neglected - i.e. that only those candidates are voted on that are an improvement compared to the *status quo*.
- (2) The Borda Fixed Point can be seen as a compromise between the Borda and Condorcet procedures (on Paretian points), and provides a degree of protection against budget changes.

There is also another conclusion. Voting is complex, and becomes increasingly complex when the numbers of candidates and voters rise (especially when we also include indifference and not just strict preference). Direct election of a President becomes quickly infeasible for the more advanced voting procedures. From this observation we can conclude that it is better to have a proportional parliamentary system, so that the elected professionals can use the advanced voting procedures to select the President. This approach of representation also prevents that there is a different electoral mandate for President versus Parliament. Note that the discussion above, on Arrow's Theorem and the Borda Fixed Point method, considers single seat elections, and not multi-seat elections. But the complexity of direct single seat elections tends to support this conclusion on the overall system of proportional representation and indirect election of the chief executives.

36. Some notes on ethics

The following notes on ethics are not well developed but the points are useful to observe.

(a) I was struck by Keynes's quote: "along the line of origin at least, economics - more properly called political economy - is a side of ethics" (Skidelsky (2000:264)). This is a point that is commonly not seen by the general public who associate economics with money, and neither by many economists who don't appreciate the subject of political economy.

(b) Ethics focusses on survival and the good life ("flourishing"). That is, just like laboratory animals require an optimal environment, humans have their own conditions for flourishing. Csikszentmihalyi (1997), "Living well. The psychology of everyday life", clarifies the required balance between challenge and competence: too much challenge causes stress while too little challenge causes boredom. The Rasch model, also known in psychology as the item-response model, or the Elo model used for Elo rating in chess, seems to fit the situation.

(c) Colignatus (2003), "On the value of life", essentially focusses on survival: the lifeyears saved and the allocation over individuals. On the quality of life, the "flourishing", I only have a rough outline "On the price of health".

(d) The chapter "Without time, no morality" of course links with the discussion in chapter 19 on determinism and free will, and the general importance of 'dynamics' for this book.

(e) There was a seminar by McCloskey on virtue ethics that was illuminating and that I can advise to who has a chance to attend. Smith (1759, 1984), "The theory of moral sentiments", featured strongly.

(f) A general point in ethical theory is that people aren't really 'sovereign consumers'. They grow from dependent children to mature adults to dependent seniors, so that there is always a degree of dependency. Political economy takes this into account. The standard economic approach that assumes sovereign consumers however can still be useful for analysis even while being limited in this

respect.

(g) Another point concerns the distinction between 'rules' and 'rhetorics'. In ethics, it does not suffice to have rules only, since these must be applied to practical situations - where rhetorics apply. In law, there are not only laws but also courts. Current literature in economics tends to emphasize rules. If economics had courts too then there might be less imbalance. The suggestion that there be economic courts links with the idea of an Economic Supreme Court.

(h) There are some other advisable books that enrich our understanding of humanity, (social) behaviour, ethics and its biological roots, which form the input for and target of political economy. Tiger (1992), "The pursuit of pleasure", mollifies the economic calculus of utility, which at the same time clarifies that it still can be useful to use small abstract (simplistic) models to develop arguments that can improve the lives of many. Damasio (2003), "Looking for Spinoza", delves into the brain to understand human emotion and feeling. Though many dimensions exist, there still is the pain and pleasure dichotomy that links to ethics. Damasio also notes that biological 'emotions' (generally) arise split-seconds before being reflected in 'feeling' in the mind. This phenomenon raises the question of 'free will' and the reader is referred to that section in chapter 19 above. De Waal (2001), "Tree of origin", discusses whether primate behavior can tell us something about human social behaviour, and the same themes arise. Cavalli-Sforza (2000), "Genes, peoples and languages", focusses on recent human evolution. Diamond (1997), "Guns, germs, and steel", makes us aware of the impact of mere geography. All these books clarify that political economy can be of value for humanity by keeping an open eye for the study of humanity itself.

(i) Cavalli-Sforza (2000:207) concludes with this statement: "It will be necessary, for example, to be more successful in spreading the necessary moral values to the whole world. Is the amount of deception, hatred, exploitation, and unrestrained selfishness we observe in almost every society inevitable? We need not be too pessimistic and should admit that people do not always display their worst qualities. But it would be valuable to learn exactly the conditions that elicit these destructive tendencies, in order to systematically prevent them. Overpopulation and extreme competition for valuable resources undoubtedly contribute. Our aptitude for social engineering is limited, although we must become more serious about work in this area, so as to end - or at least reduce - major social ills such as poverty, ignorance, population growth, racism, drug addiction, crime, and other social epidemic and endemic diseases that afflict us. Our efforts in this regard can be helped by studying cultural transmission and the forces of conservatism that hinder useful innovations, as well as the danger posed by promoting and accepting great changes too soon." I can only agree with this, and the current book fits this objective.

Book VIII

Supportive notions

37. On the nature and significance of a free lunch

It has been a cause of wonder for the present author why other economists are not more outspoken on the Tax Void, and why above theorem on the possibility of returning to full employment meets such disbelief as it apparently does. In the course of time, I found that the following issue forms part of the explanation.

Many economists think that there are no free lunches. It may even be a dogma or mantra to them. With this general attitude, they close their eyes to the free lunch that presently exists in the inefficient labour market. They adhere to their 'no free lunch' philosophy regardless of what arguments other people forward. My diagnosis is that this is one of the reasons why the debate on unemployment is rather stuck.

It actually can be shown that the economy is full of free lunches. We will discuss two examples below, namely the examples of the consumers surplus and economic growth. By regarding these examples we will better appreciate the *nature and significance* (as Robbins might say) of a free lunch. When the possibility of a free lunch is accepted, then we can discuss unemployment in more realistic terms.

Some quotes

The American science fiction writer Robert Heinlein once created a rough Moon Colony where the rules of the free market are exploited to their limits. In this colony the phrase "Your money or your life" is not a criminal threat but a sound business proposal - and a bargain for many

as well. In the same vein all incidents in the novel are subject to bets - and after some consideration, the reader of this novel may well accept this as a useful system of rational contingent forward markets. Then, properly, the slogan & law of this Moon Colony is TANSTAAFL: "There Aint No Such Thing As A Free Lunch".

TANSTAAFL is rather "accepted wisdom" in the economics profession, and not something that is subject to critical discussion. There are only few explicit statements on the supposed absence of a free lunch. A recent statement is by Cnossen & Van Ewijk (1995):

"No society limited in resources can for a moment proceed from the premise [sic] that there is such a thing as a free lunch. Dispassionate analysis of the problem and hard-headed calculation of the costs of alternative courses of action are called for. This applies especially to the economics discipline, which gives center stage to the concept of opportunity costs."

So, evidently, in the views of these authors, people disagreeing to their views on this issue are emotional or soft-headed !

Coase (1994:200) has a fine anecdote:

"Charles Walgreen in 1936 withdrew his niece from the University of Chicago because he had been informed that the university taught free love and communism. I know nothing about the university's teaching on communism but presumably Mr. Walgreen would not have been mollified to learn that the true Chicago view is that there is no such thing as a free love. Eventually, however, Mr. Walgreen was convinced that he had been misinformed (...)"

The British newspaper *The Economist* (1994b) and the Dutch economist Van Bergeijk (1994) state, in reaction to proposals by Snower, that there would be no free lunch on the labour market. Even with current unemployment, it would not be possible to change taxes, contributions and benefits in such manner that this would raise employment opportunities for the unemployed without other agents having to pay some bill.

These latter authors use arguments for their views. So their judgement does not seem dogmatic. However, their arguments have been refuted. Authors like Snower and myself, and many others, have also pointed to the possibilities for improvement in the labour market, and these arguments have not met with convincing rejections. So it may well be that TANSTAAFL works its ways in the back of the minds and hinders proper balancing of arguments.

We somehow might welcome the Cnossen & Van Ewijk statement, since it makes explicit what often is only implicit. In the following I shall deal with the problem in general. I hope to banish TANSTAAFL to the domain of science fiction, so that thereafter we can discuss the labour market in more useful terms.

Consumers surplus

The more innocent examples of free lunches happen around us every day. For example, in a free country, a transaction occurs only when both parties get something out of it. TANSTAAFL adepts will hold that when there is a transaction, and people pay for their lunch, then there clearly is no free lunch. However, the theory of the consumers surplus reminds us that you may pay for your lunch, but likely not as much as you might be willing to pay. If you would not get more out of it, there would be little point is actually doing the transaction. In everyday life, we see few people exchanging dollars for dollars, just for the fun of it. So if p is what you pay for your lunch, and if wtp is your willingness to pay, then $wtp - p$ is your free lunch.

One might argue that the TANSTAAFL conjecture properly reads that $p \neq 0$. Thus TANSTAAFL-ists accept that $wtp > p$, but the point would be that you have to invest a nonzero amount before you can reap greater benefits. It would seem to me that the following is the proper reaction to this:

1. We might accept a definition that 'no free lunch' means $p \neq 0$.
2. However, that definition does not warrant universal truth. Some goods have $p = 0$, notably endowments, ideas and, in a sense, public goods.
3. So, please then, do not use this mal-definition to kill arguments on the labour market that concern new ideas.
4. And, please see the point that it may be advisable to define ' $p \neq 0$ ' \Leftrightarrow 'there are some costs', and ' $wtp > p$ ' \Leftrightarrow 'there is a free lunch'.

In a sense, the discussion might only be about words. But there are also emotional connotations involved, that should cause us to be rather careful in that choice.

Economic growth

Economic growth is another instance of manna from heaven, and also a phenomenon that has been with us since the dawn of mankind.

An invention in one industry will generally have consequences for the entire economy. The industry of origin can seldom claim all proceeds. When the optimal ratio of production factors changes, then prices change. E.g. just by mentioning the possibility of other prices, one signals to the other parties that there is room for discussion. The other parties will use that room, and their knowledge and possessions, to claim part of the economic value of any innovation. Other parties have had no effort in bringing about the innovation, but they consider themselves partners in the industry, they know their leverage, and, thus, exploit it. Their advantage not only concerns the consequences of a better product, but also an improvement of their income position.

Model

In a general equilibrium framework we consider an economy with 400 units of labour and 600 units of capital. The economy produces food and clothing, and a social welfare function (SWF) determines the optimal combination. Here, our SWF will be a Cobb-Douglas function that neglects the distribution of income:

$$food^{0.6} clothing^{0.4} \quad (\text{SWF})$$

Labour a and capital k are allocated to the food (v) and clothing (k) industries via $av + ak = 400$ and $k_v + k_k = 600$. Industrial output is determined by the production functions. Here we take CES-functions, that have a constant elasticity of substitution between capital and labour:

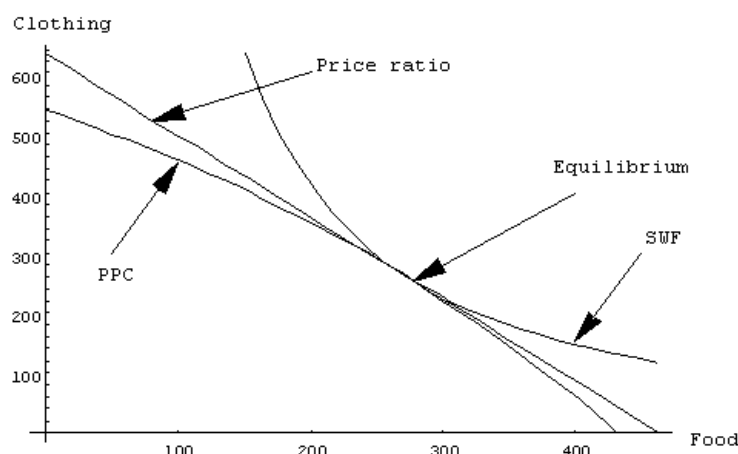
$$food = (0.8av^{-0.3} + 0.2kv^{-0.3})^{-1/0.3} = CES[0.8, 0.3]$$

$$clothing = (0.25ak^{-0.5} + 0.75kk^{-0.5})^{-1/0.5} = CES[0.25, 0.5]$$

Equilibrium and the optimum are found at 278 units of food and 253 units of clothing, with a distribution of the factors of production of $av/ak = 299/101$ and $k_v/k_k = 210/390$.

The allocation can be shown using two figures. Figure 36 confronts the social welfare function with the Production Possibility Curve (PPC).

Figure 36: Social Welfare and the Production Possibility Curve



The PPC gives those combinations of food and clothing that can be produced with the scarce resources. The choice of the highest possible value of the SWF generates a tangent of a contour of the SWF with the PPC. The tangent gives the optimal price ratio (thus trading ratio) of food and clothing.

Figure 37 confronts the production functions of the separate industries in an Edgeworth-Bowley diagram. The food industry has its origin in the lower left-hand corner, and the clothing industry has its origin in the top right-hand corner. The amounts of capital and labour that are not allocated to the food industry are allocated to the clothing industry. The drawn contour for the food industry gives those combinations of capital and labour that produce the same amount of food. That contour is

touched in a tangent by a contour of the clothing industry. The collection of all tangency points is called the contract curve. The tangent drawn here passes through the optimum selected by the SWF. This tangent thus also determines the price ratio of wages and capital rent.

Now we assume that there is an innovation in the clothing industry. This innovation can be of technical or organisational origin, and it causes that the same garment can be produced with a little less labour but a little more capital. To be concrete: the production function *clothing* = $CES[0.2, 0.5]$. Is this innovation useful? The answer appears to be that labour is the factor that is relatively scarce and that this innovation allows its better use, so that welfare can rise to 282 units of food and 269 units of clothing. The allocation of factors of production becomes $av/ak = 309/91$ and $kv/kk = 202/398$.

Figure 37: Edgeworth-Bowley diagram for the factors of production

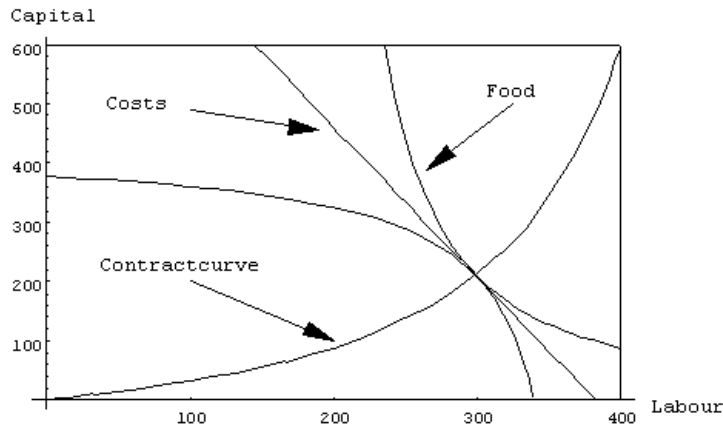


Figure 38 and Figure 39 present the same plots as before so that one may see how the economy changes. The figures speak for themselves. It will be clear that our analysis is comparative statics. How quickly the prices change, and how quickly the agents react, will be a question of dynamics.

Figure 38: SWF and PPC of two situations

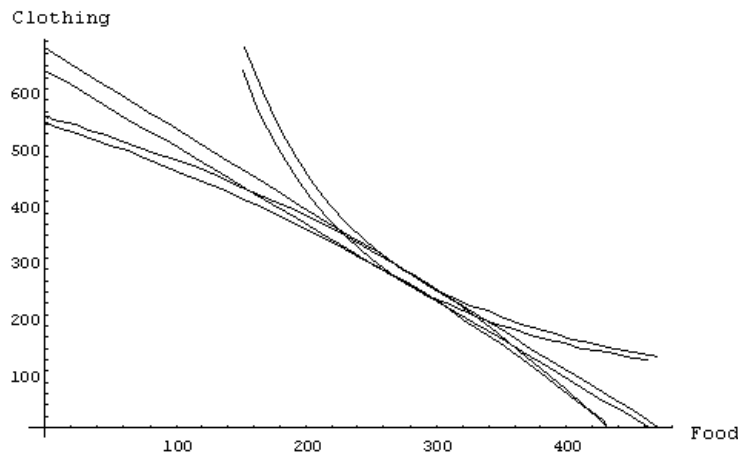
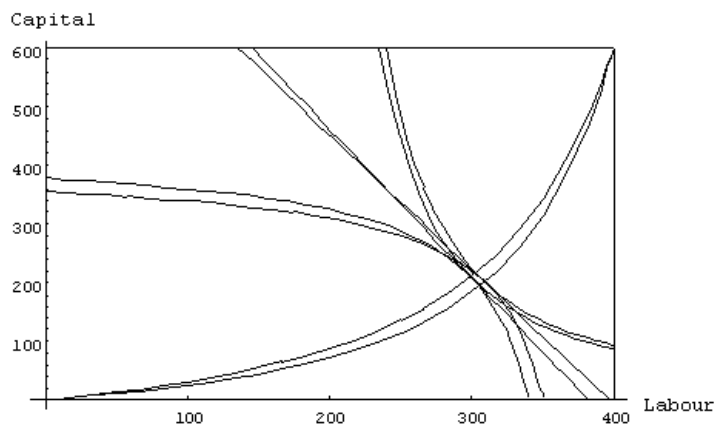


Figure 39: Edgeworth-Bowley of two situations



The free lunch

Above model was not perfect but helps us to understand how a free lunch percolates through the economy. It helps us to understand what a free lunch actually is.

In above model, the innovation falls from heaven like manna. The innovation is the free lunch. One may see the tautology: If you accept the model, then there is a free lunch; and you accept the model if you see innovation as a free lunch.

One may hold that above model is incomplete. One would want to introduce a separate R&D sector, and then there will be a balancing of R&D costs and the expected increase in national income. As an economist, I'm very much in favour of developing such models. However, actually doing this only moves the question one station further, and does not answer the proper question. For, it is possible that an economy spends 99% of its resources to R&D, and still does not come up with innovations. Good ideas remain like manna from heaven.

You may hold the view that agents already expect economic growth, so that they will not regard it as a free lunch. This reminds of the attitude of some children of rich parents who expect a rich inheritance and who don't show gratitude for their daily bread. The point to note, though, is that the concept of a free lunch is not an expectational variable, but one of circumstance. There is a free lunch or not, whatever one expects. Indeed, as another example, our wealth is a cumulation of free lunches in the past. That we don't experience this as a free lunch anymore, is more a sign that we are spoiled, rather than a sign of our dynastic rationality.

And even if we would design a revised expectational concept of a free lunch: then perfect foresight or rational expectations are only assumptions. There is always the possibility of a surprise idea. The future is uncertain (though predictable) - even though our scientific predisposition is deterministic.

Let me rephrase the point that I want to make here. There are data (exogenes or endowments such as soil, sun, technical relations and the like), the economy depends on the use of these, and the development of the economy can be described in terms of the developments in these data. The data are for free. Ideas are part of these data, and the (major) source of uncertainty. In this terminology, there are free lunches *by definition*. That is the crux. When economists better deal with their definitions, we get better economics.

Conclusion

Our discussion on the consumers surplus showed that much may be a matter of words. However, using an abstract argument and a concrete small general equilibrium model, we showed that innovation and economic growth are an example of a free lunch for the whole economy. Our intention was to refute the attitude of "there aint no such thing as a free lunch". Hopefully, this refutation creates more room for discussion of proposals concerning the present immense inefficiency on the labour market. The latter discussion is especially important, since the major proposals for solving the inefficiency concern *ideas* by impartial economists.

Note 1999: I was afraid that I would clash with Paul Krugman on this issue, since he has a Fortune column 'No Free Lunch'. To my great relief, Krugman (1999:167) however writes: "And this brings us to the deepest sense in which depression economics has returned. The quitessential economic sentence is supposed to be "There is no free lunch."; it says that there are limited resources, that to have more of one thing you must accept less of another, that there is no gain without pain. Depression economics, however, is the study of situations where there *is* a free lunch, if we can only figure out how to get our hands on it, because there are unemployed resources that could be put to work. In 1930 John Maynard Keynes wrote that "we have involved ourselves in a colossal muddle, having blundered in the control of a delicate machine, the working of which we do not understand." The true scarcity in his world - and ours - was therefor not of resources, or even of virtue, but of understanding." Hurray!

This discussion will present proper definitions for uncertainty and risk. Such definitions are required since the current definitions in common use are rather erroneous and generate conceptual problems.

Uncertainty

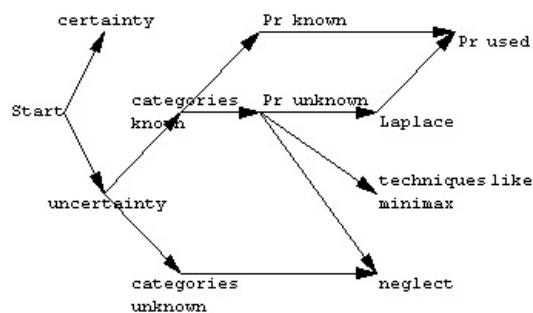
The new definitions are - see also Figure 40:

- (1) First there is the distinction between *certainty* and *uncertainty*.
- (2) Uncertainty forks into *known categories* and *unknown categories*.
- (3) Known categories forks into *known* and *unknown probabilities*.
- (4) Unknown probabilities forks into *assuming a uniform distribution* (Laplace) or use non-probabilistic *techniques like minimax* or *neglect*.

Note that these definitions only use certainty, knowledge and the distinction about categories (category-uncertainty), and that they do not use the term 'risk'. Thus an independent definition of 'risk' is possible.

A.S. Hornby (1985) "Oxford Advanced Learner's Dictionary of Current English" defines 'uncertain' as: "1 changeable; not reliable: ~ *weather*; a *man with an ~ temper*. 2 not certainly knowing or known: *be/feel ~ (about) what to do next*; a *woman of ~ age*, one whose age cannot be guessed". The above fits this.

Figure 40: A diagram of the new definitions



Risk

Hornby (1985) defines 'risk' as: "(instance of) possibility or chance of meeting danger, suffering loss, injury, etc." Also: "at the ~ risk of / at ~ of, with the possibility of (loss etc.)".

Thus, if there are possible outcomes $O = \{o_1, o_2, \dots, o_n\}$, then the situation is risky if at least one of the o 's represents a loss. The risks are the o_i that are losses, thus $Risks[O] = \{o_i \in O \mid o_i \text{ is a loss}\}$. The risk factors are the positions or index numbers of the risky outcomes, the i 's, or the dimensions (the causes that make such positions to be filled).

We will use the term 'valued risk' when a risk is valued with money or utility. When all risks have been made comparable by valuing them, then we can add them, and we will use the term *expected risk value* for the *expected value of the 'valued risks'*. Then, crucially, once these definitions are well understood, then we may also use *'the risk'* for the expected risk value. [110]

With such understanding, risk will be $r = -E_{x<0}[x]$ [111] or for short $r = -E[x < 0]$. [112]

Valued risk deals with the cases when probabilities are known *or* when unknowns are assumed to be uniformly distributed over known categories. It is not customary to use the term 'risk' for unknown categories. For example, it is uncommon to say, or write economics papers about this, that "all our lives are *at risk* of a suddenly imploding universe, or black hole hitting Earth, or waking up as a cockroaches". Such real 'Acts of God' are commonly neglected. Note though that it still remains possible to say that a situation is risky even though one cannot put a number to it. Above expectation may be indeterminate since one may lack knowledge about the probability distribution or even the categories.

Relative risk is defined as $r(t) = t - E[x < t]$ for some target level t . Risk (or *absolute risk*) takes $t = 0$, and relative risk would allow for a different target level. [113]

An interesting application is when x is a stochastic rate of return and r the certain rate, so that there is relative risk $r(r) = r - E[x < r]$. This relative risk answers the question: What is the probable loss with respect to a target return of r ? Here, $r - r(r) = E[x < r]$ gives the weight of

underperformance in the total target return (which weight has to be compensated by probable profits to achieve the target).

Conditional (relative) risk is defined as $k(t) = t - E[x | x < t]$ for some target level t . With respect to rates of return, conditional risk $k(r)$ answers the question: What would one expect to lose with respect to r , if earnings actually underperform and fall below r . Indeed, $r - k(r)$ would give your expected return when actually underperforming.

Conditional risk is related to relative risk by the property that $E[x | x < t] = E[x < t] / \Pr[x < t]$. The probable loss thus is corrected for the probability of the loss. Or, the probability measure in the expectation is corrected so that a density is taken that sums to 1. [114]

Example

In everyday parlance, profit and loss are nonnegative concepts. For example, if the difference between revenue and costs is \$-10, then your loss is \$10. It is only in mathematical economics that profits are defined as a general profit function such that 'negative profits' are possible. To understand risk, we however return to the everyday parlance convention.

Let us have a prospect that can give *profit* with probability p , and *loss* with probability $1 - p$. We denote this as Prospect[*profit*, -*loss*, p]. We call *profit* * p 'probable profit' and *loss* * $(1 - p)$ 'probable loss'. Then the following definitions apply:

- Expected Value = $\mu = p \text{ profit} + (1 - p) (-\text{loss}) = \text{probable profit} - \text{probable loss}$
- Risk = risk value = expected value of the risks = probable loss = $(1 - p) \text{ loss}$
- Risk Ratio = Risk / (ExpectedValue + Risk) = $(1 - p) \text{ loss} / (p \text{ profit})$
- Thus: Expected Value = $p \text{ profit} (1 - \text{Risk Ratio})$
- Risk Probability = cumulative probability of all losses (in this case $1 - p$)

Risk is the (absolute value of the) down side of a bet. A venture is judged to be risky if the probable loss is large. Note that this notion still is somewhat vague. A probable loss can be large because of the probability or because of the sum of money involved. This vagueness is unfortunate, in some respects, but here is little to be done about it, since this vagueness is inherent in working with probabilities. In fact, this vagueness is an essentially positive aspect of working with probabilities. For, when we have different prospects, then we can order and evaluate them on risk, neglecting differences in losses and probabilities.

Colignatus (1999, 1999a) further develops these notions for simple binary prospects, multidimensional prospects, joint prospects, and continuous probability densities. An interesting application is the 'Markowitz efficiency frontier', but now with risk rather than the spread.

Wrong use in economics 1921-2005

The above definitions are proper in the sense that they conform to every day parlance and the definitions provided by Hornby's dictionary op. cit.. The definitions provided here however differ from the use within the economics literature. First there are the definitions of Knight (1921) that have been adopted widely in economics, as for example in The New Palgrave (1998:III:358). Or it has become custom in finance to associate risk with the standard deviation. And some mathematical statisticians use another concept of risk. Let us discuss these in turn.

Uncertainty and risk

The New Palgrave, Eatwell c.s. (1998:III:358), gives the current common view:

"The most fundamental distinction in this branch of economic theory, due to Knight (1921), is that of risk versus uncertainty. A situation is said to involve *risk* if the randomness facing an economic agent can be expressed in terms of specific numerical probabilities (these probabilities may either be objectively specified as with lottery tickets, or else reflect the individual's own subjective beliefs). On the other hand, situations where the agent cannot (or does not) assign actual probabilities to the alternative possible occurrences are said to involve *uncertainty*."

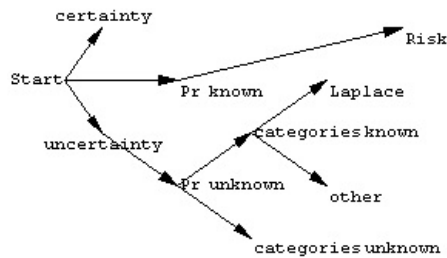
Indeed, most economic texts use this distinction in this manner (at least, up to now). However, I cannot disagree more. The objections to Knight's concept are:

- (a) Certainty and uncertainty are *binary*. So, if a situation is not uncertain, then we have certainty, and there is no assigning of probabilities.
- (b) If I am uncertain about a situation and assign equal probabilities to all cases -

the Laplace suggestion - then according to Knight this no longer is uncertainty!
(c) In Hornby's definition, the distinction is not between known and unknown probabilities, but the distinction is between *events* and *human thought*.

Figure 41 contains a diagram of the objectionable use of terms 1921-2005.

Figure 41: A diagram of the current but objectionable use of terms



The diagram clarifies the inconsistency with the binary character of certainty/uncertainty, the curious treatment of "Laplace", and the over-use of terms by introducing the term 'risk' where there already is the qualification that the probabilities are known.

Risk is not the variance

The finance literature often uses the term 'risk' for the variance or spread (standard deviation) of the distribution of the rates of return of investments. This would be an improper use of the term. Suppose that one has a very profitable venture without the possibility of a loss. Suppose that the rate of return of this venture has a large variance, from mildly profitable to highly profitable. Is this a risky venture? No, not in the usual understanding of the term.

Risk is not the negative of expected revenue

In mathematical statistics, some authors, like Ferguson (1967), define 'risk' as 'expected loss'. However, it appears that they actually regard 'loss' as the negative of total returns (i.e. - revenue), so the definition used is $-(p \text{ profit} + (1-p) (-\text{loss}))$, which is the negated expected value. This use of the term 'risk' is inappropriate. My proposal is to use the word "due" to stand for the negative of expected value, so that the standard statistical decision theory (with the game against nature) can be described as minimising *due*.

Note on Bernstein's "Against the gods"

I came across Bernstein (1996) "Against the gods", and found it equally entertaining as his "Capital Ideas". One comment is that Bernstein indeed emphasises Knight's and Keynes's statements on "uncertainty". My answer to that is, again, that unknown probabilities or even unknown categories indeed are serious cases of uncertainty, so that earlier writers on the subject were right in emphasising that seriousness. However, we should not be tempted to reserve the word "uncertainty" to only those cases. So with all due respect to Knight and Keynes, the definitions provided here are the proper ones.

Note on Wilson & Crouch (2001)

Wilson & Crouch (2001), "Risk-benefit analysis", adopt the same definition of "risk" as discussed here. I saw this only after the first edition of this book. Since professor Wilson has been teaching on the subject for decades and his book only collects his teaching material I apparently only rediscovered what was already clear to him. Perhaps my presentation is a bit clearer since I use the formal $E[.]$ notation. This chapter remains useful since it clarifies the confusions from the other definitions. Where risk is the product of probability and severity, this book also benefits from the emphasis on this definition, since, where I started to develop this argument after the Fall of the Berlin Wall in 1989, we have to deal with a future where there are huge dangers: though with only a small probability but on balance a relevant risk.

Reduced form

39. The possibility of full employment in the welfare state

Introduction

Above we noted that the structural form of western welfare states is quite complicated. We would like to have a more enduring result than awareness of complexity, and therefore we adopt the Definition & Reality methodology. As said, a *proposition* - as a statement on reality - can be regarded as a mathematical theorem about/within a model of stylized facts. When there is a tautology, we attain truth by definition. So we now (a) restate what we consider to be the stylized facts, (b) define our concepts, (c) develop theorems and proofs, (d) link back to conclusions about reality.

The reduced form that is most relevant concerns the (long run) comparative statics of the regimes of full employment (1950-1970; Japan/Sweden) and unemployment (1970-2005).

This kind of comparative statics should not induce us to think that we abolish dynamics, though. Stagflation has both a dynamic (inflation) and a static or stationary (unemployment) aspect. When we skip proper dynamics and discuss regime switches in which unemployment features as an important switch variable, then Phillipscurve processes are included in the switching process, even though they don't feature explicitly in the reduced form.

To attain the necessary level of generality, we use a reduced form where the economy is mapped into a model with three types of agents. One type is the net receiver; and two types are net tax payers. Since the latter two points give a line, that single line represents the state of the economy. The regime switch depends upon the choice of tax parameters.

Stylized facts

There are regimes of full employment (1950-1970; Japan/Sweden) and unemployment (1970-2005).

In the welfare state, it is more efficient to have full employment. Unemployment causes lower income - not only directly as in old-fashioned capitalism but also, more noteworthy, by the additional benefit burden. Unemployment can have an adverse effect on inflation when it causes a shift of the Phillipscurve.

It turns out that the propositions that are most interesting, from the viewpoint of political economy, do not require continuity, and can be formulated by assuming dichotomous High and Low productivity labour, combined with one class of Benefit recipients. This assumption allows for a reduced form formulation that allows for generality. For expository reasons we can take social subsistence and productivities as purely constant. In the simple mathematical model the dichotomy gives fixed numbers, in actual observation they are subgroup averages which depend upon general equilibrium processes. The benefit level is rather not an average but a threshold, like the surface of the sea at Scheveningen beach. The words *Benefit*, *High*, and *Low* give letters BHL, and this abbreviation may be pronounced - converged upon after many walks - as 'beachly'.

It is a stylized fact that welfare states are BHL. Checking this requires next definitions.

Concepts

Here we will redefine variables such as H , Z , b , n etcetera. Also the reduced tax function will be $\mathcal{T}(\cdot)$ as opposed to structural $\mathcal{T}[\cdot]$. These redefinitions hold for this chapter 39 and chapter 40 - that together form a reduced form unity.

Definition: Biological subsistence, for survival, is S .

Definition: An economy is a **welfare state** iff people without income are not left to charity, stealing or death, but get a benefit B . The benefit B has the following properties:

- i. the net benefit has the social subsistence level $B \geq S$,
- ii. people on benefit may not work, [115]
- iii. eligible are:
 - iii-a. permanent benefit recipients (e.g. 'the elderly')

- iii-b. people able to work but currently unable to earn at least net B (these people are called 'the unemployed').

Remark: it is useful to have category (iii-a) in the model. It introduces a degree of sufficient complexity. When there are levies even under full employment, then it is easier to understand that wrong co-ordination may cause a switch to unemployment. But (iii-a) might count zero people.

Remark: Property (iii-b) has the effect of a legal minimum wage. It sets a floor in the market. We might introduce a benefit threshold (for workers) XB such that $S \leq XB < B$, but for expository reasons, we take $XB = B$.

Remark: The reservation wage effect is as follows. When vacancies with net income higher than B are registered, then the relevant unemployment benefits are simply scratched. This mimics the array of measures needed for continuous reality.

Remark: This definition implies that people working with subsidies in the Swedish/Japanese case are not on 'benefit'. Such subsidies thus must be accounted differently, basically as part of taxes.

Remark: The black economy (another form of working while on welfare) is neglected. We neglect also the case that some people hate being on welfare, and thus continue working even when their net earnings are below the benefit threshold ($S < \text{net earnings} < XB$).

Definition: A welfare state is *bhl* iff it remains meaningful to trisect its membership into the economic classes of Low and High productivity workers and permanent Benefit recipients.

Definition: A welfare state is nonrevolutionary, iff its economic classes and their data are stable across the change of employment regime.

Definition: A welfare state is BHL iff it is *bhl* and nonrevolutionary.

Remark: Denote High and Low gross productivity as H and L . Note that B is net. Also *bhl-ness* technically implies $H \gg L \geq B$.

Remark: L may be associated with a minimum wage and H with some average income including profits.

Remark: An example of 'meaningful' are subgroup subperiod averages.

Remark: Stability can sometimes be found by normalizing, e.g. take subperiod $H(t)$ as the subperiod numeraire.

Remark: A person's benefit is often related to the former period working wage. However, anything can be clustered into a social subsistence average. People 'between jobs' could be taken to be basically in the employed cluster, people with serious unemployment could be in the other cluster. Don't object that this makes the matter tautological - since that is exactly what we try to do. (We try to find the definitions that make our understanding tautological.)

Remark: A nonrevolutionary welfare state still allows for politics and economic change.

Lemma I: A welfare state is BHL iff there is stability over the regimes for the variables B, H, L and the associated numbers of agents.

Proof: Self evident. **Q.E.D.**

Remark: The relevant notion is that the change from unemployment towards full employment (or vice versa) does not destroy the productive base of the economy. Instead of taking this notion explicitly, we have taken a stronger property of nonrevolutionarity, that allows, if *bhl-ness* applies too, to take (approximate) constancy of the variables.

Remark: At first glance these definitions seem self-defeating for the effort to apply the mathematical method to employment regime switches. When 35 million, nowadays unemployed in the OECD, are supposed to find a job, then apparently the policy maker is supposed to be able to judge on the 'stabilities' involved. That seems an impossibly strong assumption. We may however remind about the regime switch from 1950-1970 to 1970-2005. In addition, as modellers we discuss equilibrium states of various paths. Also, it is possible to give the variables an incremental interpretation, e.g. take 34 of the 35 (million) as permanently on benefit, and only look at 1 million on the margin (giving "local-BHL-ness").

Lemma II: For a welfare state, the (apparent) existence of people with a productivity $L' < B$, does not block the application of BHL-ness.

Proof: Consider the pathological case of people with productivity $L' < B$, i.e. so low that (in whatever regime) their net market income is lower than B . Take the dentists, who in a regulated market cannot start a practice, and who are very bad at farming in a flowerpot (which could be done with a Cobb-Douglas production function). These people can be treated as:

- (1) society is willing to classify them as (iii-a)
- (2) like the Swedish/Japanese approach, they may keep on working with some employer subsidy Z ; in that case $L = L' + Z$
- (3) society lowers B to $B = S$ or $B = L'$, and reconsiders the problem
- (4) if regulations are the bottleneck, then changing these regulations redefines 'given' productivity L' . Similarly, if Keynesian methods solve unemployment, then only if people's *effective productivity* is restored. So the reduced form applies anyhow. (In that case the regulation or lack of a policy measure is a tax in terms of the reduced form, and 'real productivity' is higher than L' .)
- (5) they get charity, steal or die, and hence there is no welfare state.

Hence BHL-ness implies that these cases can be ‘averaged out of the discussion’ or be left out for expository reasons.

Q.E.D.

Remark: In other words, BHL-ness is sufficient for discussing employment in the welfare state (but not necessarily for other topics, for example, how regulations affect productivity).

The theorem

Theorem BHL.1: For a BHL economy, both full employment and unemployment are possible.

Proof:

The structure of this proof is, that we determine the accounting equations, find the reduced form tax relations that are implicit in these, and then deduce the critical tax parameters that determine the regime switch.

Looking at the BHL concept, the only possibility for variation is in category (iii-b). The recipients in that class all move together, and thus there are only two regimes (*in* or *out of* benefit dependency). Given that gross productivity has been fixed, the only possible variation concerns net income. We assign the term “tax regime” to the possible states in net income. We find, in other words, that these regimes are implicit in the BHL concept. Let t be the index for tax regime 0 (unemployment) or 1 (full employment).

Given BHL-ness, we thus have: t is 0 or 1, and:

b permanent benefit recipients;

h persons with gross productivity H and net $N(t)$;

l persons with gross productivity $L \ll H$, and net $K(t)$.

The regimes are characterized by net income conditions $K(0) < B$ and $K(1) \geq B$:

(0) In regime 0, $K(0) < B$ and l are eligible for benefit B , and they don’t work.

(1) In regime 1, $K(1) \geq B$ and l don’t get benefit B , and they work and earn L .

On benefit, the welfare rule is strict on not-working, while by assumption the black economy can be neglected. Off benefit, the l have no other means of support and thus work, and earn gross L . Since net income cannot be larger, $L \geq K(1) \geq B$.

In the following equations, personal income y takes values H and L . Relation (1- t) below gives the implied tax system, where the personal tax $T(y, t)$ depends upon personal income y and the tax regime t :

$$T(H, t) \equiv H - N(t) ; \quad T(L, t) \equiv L - K(t) \quad (1-t)$$

Two points share a line. Hence, the tax system can be represented by a straight line, with an intercept and a marginal tariff. These implied ‘parameters’ (actually: reduced form variables) are defined in (2- t), with 2 pairs of 2 equations & 2 unknowns, giving tax exemption $X(t)$ and marginal rate $R(t)$. The line is the *reduced form* representation, while the statutory system which guides people’s actions could be anything. Each regime gives a *set* of reduced form lines; our interest concerns the boundary line.

$$R(t) (y - X(t)) \equiv T(y, t) \quad (2-t)$$

Relation (3- t) defines national income $Y(t)$, where the personal incomes are multiplied by the numbers of persons involved. Revenues $h H + b 0 = h H$ are regime independent. Depending upon the regime the l bring in L or not.

$$Y(t) \equiv h H + t l L + b 0 \quad (3-t)$$

Relation (4- t) states the condition of a balanced budget. National income equals the sum of net incomes after redistribution. The condition may be called “Walras’ Law”.

$$Y(0) = h H = h N(0) + (l + b) B \quad (4-0)$$

or $h T(H, 0) = (l + b) B$

$$Y(1) = h H + l L = h N(1) + l K(1) + b B \quad (4-1)$$

or $h T(H, 1) + l T(L, 1) = b B$

The budget condition implies that the tax ‘parameters’ are functions of each other. Per regime, a higher exemption means a higher marginal tariff, and vice versa. The regime switch itself might, but need not, be the exception. Given that marginal rates R are generally regarded as policy variables, we solve for X . With $X(1) \leq L$:

$$(4-0) \quad h R(0) (H - X(0)) = (l + b) B \quad \Rightarrow$$

$$X(0) = H - (l + b) B / (h R(0)) \quad (5-0)$$

$$(4-1) \quad h R(1) (H - X(1)) + l R(1) (L - X(1)) = b B \quad \Rightarrow$$

$$X(1) = (h H + l L - b B / R(1)) / (h + l) \quad (5-1)$$

There is a *set* of critical levels of gross income $M(t) = M(R(t), t)$, such that unemployment results iff earnings L are less than $M(t)$. This follows directly from rule (iii-b). This critical income solves from:

$$\begin{aligned} M(t) - T(M(t), t) &\equiv B \\ M(t) &= M(R(t), t) = (B - R(t) X(t)) / (1 - R(t)) \end{aligned} \quad (6-t)$$

Under unemployment, the benefits cause additional taxes lB which are levied on a smaller tax base. Given that l are unemployed anyway, the tax exemption $X(0)$ can be lowered, so that the marginal rate is as low as possible. This has the effect that $M(0)$ shifts to the right, so that the gap between the possible wage L and the wage 'required for a decent living' widens. There is obviously hysteresis, of a 'catastrophic' kind. Conversely, $M(1)$ can range in $B \leq M(1) \leq L$ and allow for larger $R(1)$ though this could have little effect since also $X(1)$ rises (see below). While these properties apply to the reduced form, the same mechanisms apparently apply to the structural form too (as they concern the same reality).

Substituting (5- t) in (6- t) gives $M(t)$ as an explicit function of $R(t)$. The regime switch occurs at $M(1) = M(RS, 1) = L$ with *switch* marginal rate RS and implied exemption XS :

$$RS = \frac{bB - (h + l) (L - B)}{h (H - L)} \quad (7-RS)$$

$$XS = L \frac{bB - (hH/L + l) (L - B)}{bB - (h + l) (L - B)} \quad (7-XS)$$

Rewriting conditions $K(0) < B$ and $K(1) \geq B$ gives:

$$(8-t) \quad \{L - T(L, t) < B\} \Rightarrow \{X(t) \leq XS \quad \& \quad L < M(t)\}$$

(9- t)

$$\{L - T(L, t) > B\} \Rightarrow \{X(t) \geq XS \quad \& \quad L > M(t)\}$$

Now consider the regimes, and determine whether they can exist:

Full employment: Given that $L > B$, it follows from (9-1) that the tax exemption can be chosen on or above the critical value XS . Hence $XS \leq X(1) < H$. A prime example is $X(1) = B$. Hence (iii-b) is empty.

Unemployment: L is given as the market clearing wage for low productivity persons. If $X(0) < XS$, then taxes on these persons are increased, and their net income drops below B . Given that $K(0) < B$, they are eligible for benefits, and apply. Hence (iii-b) is not empty.

It has been shown that both cases are possible. **Q.E.D.**

Remark: This exposition may seem an overly complex translation of the Cohen Stuart 1889 quote (above) to the welfare state situation. The proof might have said "self-evident" after the first paragraph. Given the record of unnecessary unemployment, this author may however be excused for driving the point home. The usefulness of the BHL concept may be, that officials now can report, "we have diagnosed l people on benefit who should be able to earn $L > B$ on the market, so let's try to find out how we are stopping them from doing so".

Remark: A more didactic exposition may start with a *structural* tax relation, e.g. with $R(t)$ replaced by r in (2- t); see for example the Bentham tax. Then one can show that a *ceteris paribus* reduction of the tax exemption will increase unemployment. Hence, for the return of full employment it is necessary (but not sufficient) to increase income tax exemption - or something from the *ceteris paribus* part. Then, the second step in the exposition (as we have done here) is to rename the axis into *compounded variables* (including VAT, regulations, subsidies, excises, charity, etcetera), and then consider (2- t) as the reduced form. Then we find necessary and sufficient conditions. This however only works satisfactorily for an accepted model of a real economy.

Remark: The theorem doesn't establish that unemployment has only *one* cause. Various kinds of unemployment have various causes. But, when various causes are mapped into the world of BHL-ness, then the theorem applies. For example, a long term unemployed academic would

be categorised as unskilled labour, even though his employed colleagues earn much more. (The BHL concept thus is drastic. The reasons for applying it have been explained elsewhere.)

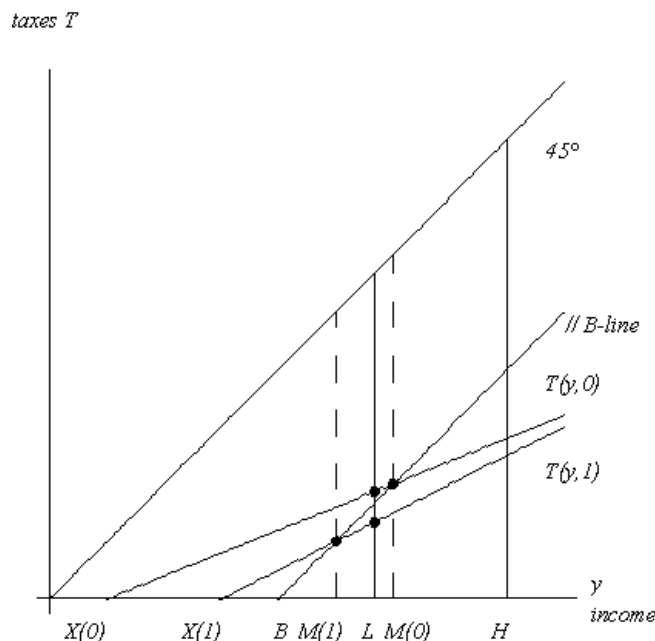
Remark: The theorem is strongest in the $t = 1 \rightarrow t = 0$ part. Given full employment, it is easy to mess it up; and it is easy to see that you can mess it up. The other way around is less obvious. Here, both the requirement $L \geq B$ and Lemma II are crucial. For expository reasons those are sufficient, but not as sharp as they could be. For example, we might accept a small loss in $H(1) \leq H(0)$, as long as net $N(1) \geq N(0)$. However, even then the analytical structure remains, that productivity L is *assumed*, so that it doesn't come as a big surprise that employment is possible. This actually is similar to the Arrow-Debreu setting, where endowments are assumed, and full employment appears to be possible. The modern reader might be inclined towards assumptions that generate the impossibility of full employment. (See for example the Grandmont (1983) setting of expectancy mismatch.) However, each impossibility can be questioned too. It is up to *reality* what model applies. Stated differently: the value of above tautological theorem is that it helps us to understand what is implicit in our concepts, so that we may be more aware in observing whether these concepts apply. This fits in with our concept of a *proposition*.

Remark: The reduced form also captures the 'physical tax'. The lack of infrastructure, machines or tools may 'tax' people - and once these have been provided, they could start earning income, and their earnings would, crucially, be larger than needed to pay for the equipment. Economists of course understand this concept of a physical tax - as the lack of efficient capital markets, or the frustration of those by taxes - but the crucial point is the abstract one. When people don't earn anything, and the economist suggests to abolish some tax, then a listener may become upset, since how can you abolish something that people don't pay ?

Graphical presentation

Diagrams help understanding the analysis. Figure 42 shows two tax regimes, $T(y, 0)$ and $T(y, 1)$, characterized by different exemptions $X(0)$ and $X(1)$, and different critical incomes $M(0)$ and $M(1)$. The main difference is net income at L . In regime 0, net income at L falls below subsistence, causing unemployment and higher taxes to pay for benefits.

Figure 42: Tax regimes



It can be seen that $T(y, 0)$ is above $T(y, 1)$, or that average tax rates are lower under full employment. On the left section of the horizontal axis, $X(0) < X(1)$. On the right section, since taxes in regime 0 are higher and levied on a smaller tax base, $T(H, 0) > T(H, 1)$. Thus the effect on the average tax rate is clear. The effect on the marginal rate depends upon the numbers. The case depicted here, with a higher marginal rate in regime 1, is only one possibility; but it shows that a higher marginal rate can combine with actually lower taxes.

40. The possibility of co-ordination

Chapter 40 showed the technical possibility of full employment for a welfare state. Chapter 34 showed that social choice is feasible, in the sense that there are consistent and reasonable constitutions that society might deem attractive. In particular, there is the example of a constitution that uses the efficiency criterion (Pareto optimality, PO) to select its policy. There still remains one issue to settle. This is the issue of information. Society might have a consistent preference, and consistently prefer full employment above unemployment, but when people don't know that it is possible, and instead even have theories that tell them that full employment is impossible, then society might still choose for unemployment as the best of all evils. The issue of information already featured in our discussion of Arrow's Theorem, and now returns for our discussion of unemployment.

We again follow the procedure given by our methodology. We select stylized facts, develop our concepts, deduce results, and link back to reality. We will first construct a subsidiary lemma that is very general and concerns any suboptimality due to misinformation. Then we take our theorem on the possibility of full employment, recognise it as an item of information, insert it, and construct our theorem on the possibility of co-ordination. [116]

Stylized facts

Recorded full employment situations may have been caused by 'chance'. Policy makers in 1950-1970 may have thought that functional finance was effective, while it also was the tax exemption level. A re-evaluation of the history may however also show that leading economic advisers in the 1950s may have been wiser than those of the 1960s.

It remains a stylized fact that much of the subject matter on employment is well-known. For example in Holland, CPB economists Van Schaaijk (1983), Bakhoven (1988) and Colignatus (1990) pointed the way to full employment. The state of knowledge turns out to be part of the model.

There is a Pareto Optimizing Change (POC) iff some advance and none suffer. A change from unemployment to employment need not be *strictly* POC. Note that we already have resolved that we don't need high unemployment to keep inflation in check. So the CWIRU is no argument against a POC. There are other clear reasons that pose a problem. First these two:

- Some bureaucrats have plush jobs administrating the unemployed, and would lose their job and sense of power.
- The unemployed would lose their leisure. For some, the combination of low benefit B and leisure might be preferable to work at a higher income.

We can overcome these barriers by going back to basics, i.e. to our definitions. First of all, the bureaucrats are reminded that they are there to serve the public cause ('res publica') - and thus they have signed a contract - before they got the job - that they will welcome full employment and raise no anti-POC objections. In the same way, the people on the dole have signed a contract - before they got the benefit - that they will accept a job at a living wage, and will not raise anti-POC objections either.

A final observation is that the power elite, those who determine the SWF, might enjoy unemployment of a section of the population for some strange other reason. They might not care about the increase of income, freedom and welfare from a change towards full employment, but they would prefer the idea of people in helpless positions and the warm gratitude they show for their benefits. A king needs subjects. We resolve this problem by proper formulation of the theorem.

Concepts

Note that we use the symbols of chapter 39 (that forms a unity with this chapter).

Above theorem on the technical possibility of full employment is essentially incomplete. It has not been specified how the tax regime comes about. The tax regime is an expression of the social choice already made, but it has not been explained how a particular choice has been caused. What is required is a power distribution on the $b + h + l$ agents in the economy. In conventional terms the power distribution is expressed as a social welfare function SWF, and the tax regime is the result of the maximisation subject to the state of information I .

(40.1)

Using a SWF serves expository purposes. When turning to practical application we could use the Drissen & Van Winden (1990) approach. But the logic of both approaches is the same.

The introduction of regime indicator t as a separate variable in the SWF means that it stands as a proxy. The economy is not simply a collection of individuals maximizing utility over consumption and labour. There are some institutional aspects too. An example of an institutional influence is that some social security officials might benefit from unemployment, since it keeps them in attractive jobs. All such (Public Choice) phenomena can be collected on their point of relevance: the employment regime t .

Secondly, there is information I . Ever since Keynes and Tinbergen, or even earlier, but for some economists more acutely since Muth and Lucas, economists have given attention to the information sets that guide the activity of agents. This concerns not just plain knowledge, but rather what people believe about the state of the world. The information sets may contain individual and social aspects, like own prices and the (announced) general price level.

Variable I is an aggregate. It represents the state of knowledge of those in power, where 'having some power' is a state of nature given by an array or by a distribution. The latter is not further developed here. A basic point however is that if some economist would know how to solve unemployment, but those in power don't, then the budget set is I_B , while $I < I_B$ - and those in power apparently prefer not to know. [117]

The use of variable I could complicate the analysis in various ways. R&D could be an economic activity affecting social welfare itself, amending (40.1) etcetera. But the present formulation suffices for our purposes. Note, the maximisation process itself finds its operational implementation in the actual work of some agents in the economy. Such work might be implicit and thus not explicitly remunerated. More conventionally there are some administrators (e.g. a "Council of Economic Advisers") who are explicitly paid for their information handling activities (often: whatever outcome on t).

Piore (1987) reminds us that unemployment is not a natural disaster like an earthquake, but derives its cause, nature and significance from the social system as a whole. In this line, when unemployment arises, we would find the solution by studying the whole system. This includes information. And Piore's reminder, being a reminder, is a piece of information. Indeed, one important social type of information concerns theory itself, and economic models in particular. The development of the theory of Rational Expectations (or model-consistency) implies this too. Economic theories about unemployment are themselves part of the information sets in society. An adequate description of unemployment not only requires a statement of taxes, social security and e.g. legal minimum wage, and their technical interaction, but also a statement of people's perceptions, of the theories in the journals, and of what journalists and politicians make of these.

When unemployment arises, it may be caused by the power distribution, but the cause can also be plain lack of knowlegde. It may very well be that Piore's proposition has not gotten sufficient attention from policy makers and advisers. And this lack of attention, if it were true, would be a prime example of the influence of the information set on economic activity.

There are two relevant states of information: $I = 1$ meaning that those in power perceive of a (sound, compact) solution of unemployment, and $I = 0$ meaning that this is not the case. Note that knowledge about the theorem on co-ordination, that is to be formulated next, might but need not be included itself in $I = 1$.

The Dissipation of Knowledge ΔI by science, education and media need not be detriment to those in power, but it might be. In the latter case ΔI would not be POC in the ordinary sense. However, many would hold that ΔI morally dominates POC - and if these people are in power, then this conviction is reflected in the SWF. Note also that ΔI need not be positive, e.g. when a wise king dies or a wise government party loses the elections. Note that when ΔI coincides with a shift in power, the prime cause can be both personal properties involved or the information; but here everything is aggregated into the latter.

We conclude this section by a short abstract discussion of the concept and properties of information, and Lemma III.

Regard a controlable dichotomous system with states $s = 0$ or $s = 1$.

Two consecutive states are of the form $\{0, 0\}$ and $\{1, 1\}$ where the regimes are maintained, and $\{0, 1\}$ and $\{1, 0\}$ where there is a switch. If policy is conscious, then the movement from one state to the other (or the same) depends on information - and thus there are four lists of basic information. With 4 such items, an agent's mind can possess any combination. There are 15 of such combinations: namely 1 case where all 4 are known, 4 cases of only 3 items, 6 of 2 items, and 4 cases when only 1 is known. It will be useful to compress this abundance.

The following definitions are useful:

Definition: Basic information is a *list* of "what one does" to have one state in one moment and another state in the next moment. An example list is: {"Provide oxygen and a dry place", "Light the match", "Let it burn till it is all cinders."}. Other examples are recipes, film scripts, computer programs ("Click on a button"). We can denote basic information as $BI(s_1, s_2)$. Note: In this version of the proof we allow basic information to be true or false.

Definition: A state s is said to be *controlable* iff there exists - in principle - *true* basic information on both s and $1-s$, and the agents have the resources to use this information. Note that this information need not be known by the agents (need not be available), and it need not even be known to the agents that the matter is not unknowable.

Definition: Information is *available* when at least one agent in the economy has it. (This is stronger than the 'existence in principle' of controlability.)

Definition: Sound information $J(s)$ is a list of *both* what one does to maintain s and what one might do to change s into $1-s$, using *true* cause and effect relations. Thus $J(s) = BI(s, s) \cup BI(s, 1-s) \mid \text{truth}$. Denote an arbitrary belief as $J'(s)$ - that however will not be sound since it would not be necessarily true.

Remark: True information is sound when the information concerning $\{1, 1\}$ and $\{1, 0\}$ is joined, or if the information on $\{0, 0\}$ and $\{0, 1\}$ is joined. One may e.g. know how to burn or not to burn a match, but not how to restore cinders into a match again (except for restarting the universe, but that is not likely controlable). Let 1 stand for match, and 0 for cinders. Then $J(1)$ exists, but $J(0)$ doesn't (only partly, to maintain cinders as they are). Using sound information rather than basic information has analytical advantage. A Roman emperor may think that he maintains his good fortune by sacrificing to the gods. We rather discuss cases where governments deliberately abstain from wrong policies.

Remark: Consider the list {"If you happen to flip back to 0, use $BI(0, 1)$ to go back to 1"}. Can we classify this as $BI(1, 1)$? We could allow this if the cost of the temporary flip is low. For example, riding a bicycle requires continual readjustment of equilibrium. We can define $BI(s, s) = \{\text{chance}(s, 1-s)\} \cup BI(1-s, s) \mid \text{truth}$, as implied control information. But since this does not give $BI(s, 1-s)$, the implied control information does not give sound information. Stated differently, we are interested in durable states s , and not in flipping states. If we observe s then we want this to be caused by deliberate rejection of the use of $BI(s, 1-s)$. We also regard cases in which implied control would be costly.

Definition: The tuple $(J(1), J(0), s)$ is the state of a sound system. Note: Though the information is denoted as a function of s , information in a controlable state is the prime cause and s the prime effect.

Definition: Information is called *compact* iff $J(0) \Leftrightarrow J(1)$. Note: Compactness means that one knows the explanation of one state, iff one knows the explanation for the other state. Then we can use a single variable J or J' .

Definition: A state s is said to be caused *by chance* iff a situation of s and unsound belief $J'(s)$ are stable. It is said then that there is a *hidden cause* linking $J(s)$ to s .

Definition: If the sound information concerns a model then we can denote J in binary values, with 1 = 'the model is known' and 0 = 'the model isn't known', rather than use the whole list of statements. With binary information, compactness $J(0) \Leftrightarrow J(1)$ becomes $J(0) = J(1)$.

Remark: Consider the example of the Roman emperor. His model is '*sacrifice* \Leftrightarrow *fortune*' (and if fortune slips after a sacrifice, then apparently more sacrifices are required). One of his basic informations is $BI(\sim\text{fortune}, \text{fortune}) = \{\text{'sacrifice'} \Leftrightarrow \text{'fortune'}, \text{'In this case sacrifice'}\}$. Since $J(1) \Leftrightarrow J(0)$ this is a compact belief.

Remark: If s is the case, and one doesn't believe $J(s)$, so that $J(s) = 0$, then one believes some alternative $J'(s)$. Someone unfamiliar with matches would have the unsound (perhaps only basic) information 'this is just a piece of wood'. More complex situations need thorough analysis.

E.g. someone may know the text of a theorem and benefit from that, but may not know its proof.

Lemma III: If there is sound information $(J(1), J(0))$ on a controllable dichotomous state s , then:

- (i) if the information is not compact then there are 8 states of the system, with 4 states implying a hidden cause,
- (ii) if the information is compact, these numbers are halved.

Proof:

We tabulate the possible states of the system $(J(1), J(0), s)$ in Table 16.

In cases (rows) (3), (4), (6) and (7), the agent doesn't possess sound information and believes some $J(s)$ (e.g. 'the world is as it is'), but he chances at s nevertheless. This implies that there is a hidden cause. (For example, the state of the system was inherited, and the agent wishes to keep things as they are. In that case $(J(1), J(0), s)$ has causality within a more complex model, describing in more detail how people act on their beliefs.)

If the information is compact, we only consider states (1) to (4). **Q.E.D.**

Discussion: To understand the proof, look for example at row 6: There is a true model for sequential states $\{1, 1\}$ and $\{1, 0\}$, or to maintain 1 or change to 0. But nothing is truly known about maintaining 0 or changing back from 0 to 1 (though beliefs can exist). Observed is $s = 0$. Perhaps it once was a conscious choice to go from 1 to 0, and perhaps one uses the implied control $\{\text{chance}(0, 1)\} \cup B(1, 0) | \text{truth}$. But we are concerned with durable cases for which implied control would be costly. We want to see deliberate rejection of the use of $B(0, 1)$. But this information is not present. Hence the endurance of 0 is caused by chance.

Table 16: States of the system

	J	$J(1)$	$J(0)$	s	$meaning$		
(1)	1	1	1	1	given $J = 1$	one chooses	$s = 1$
(2)	1	1	1	0	given $J = 1$	one chooses	$s = 0$
(3)	0	0	0	1	given $J = 0$	one chances	$s = 1$
						at	
(4)	0	0	0	0	given $J = 0$	one chances	$s = 0$
						at	
(5)	-	1	0	1	given $J(1) =$ 1	one chooses	$s = 1$
(6)	-	1	0	0	given $J(0) =$ 0	one chances	$s = 0$
						at	
(7)	-	0	1	1	given $J(1) =$ 0	one chances	$s = 1$
						at	
(8)	-	0	1	0	given $J(0) =$ 1	one chooses	$s = 0$

Note that a conscious choice is made when one does not use the information to switch to the other state.

The special theorem

When we apply Lemma III, which is about information handling in general, to our subject matter of employment, we get what for this area amounts to a theorem. The first theorem is special since it assumes the BHL property.

Definition: There is wrong co-ordination if a SWF optimal change is blocked only by 'lack of knowledge' of the power elite while the information actually is available. (Co-ordination can go wrong on other counts too.)

Theorem BHL.2: Given theorem BHL.1:
 (i) full employment results from conscious choice or chance
 (ii) unemployment results from conscious choice or from wrong co-ordination

Proof:

Theorem BHL.1 shows that full employment for the BHL welfare state is a controllable dichotomous state. The theorem is sound and compact. Thus Lemma III applies.

Possible states of sound compact knowledge and employment (I, t) are:

- (1) (1, 1): having the knowledge, full employment results;
- (2) (0, 1): lacking the knowledge, full employment results; thus there is a hidden cause; thus it is by chance;
- (3) (1, 0): having the knowledge, unemployment results; thus, the explanation

comes from the power distribution, so that full employment is not to the advantage of those in power, and the choice for unemployment is conscious;

- (4) (0, 0): lacking the knowledge, unemployment results. Note that theorem BHL.1 is available knowledge (e.g. it was published by Colignatus (1992b, 1995a, or this book)). [118] Where we currently speak about 'lack of knowledge' then we mean the knowledge of the power elite, who do not fully use the knowledge budget set. Introduction of theorem BHL.1 into the knowledge bank of the power elite unveils two subcases:

(4.1) There is a switch to (1): optimal change was blocked only by lack of knowledge, while the information actually is available: hence wrong co-ordination;

(4.2.) There is a switch to (3): information doesn't matter.

Q.E.D.

Remark: In both employment regimes we have 'conscious maximizing behaviour subject to the state of information', but the regimes cause different conditions. There is little use in subdividing case (2). If more information is introduced, then the power distribution may cause unemployment. This effect however has already been covered in (3). See the note "more on chance".

Remark: Cases (3) and (4.2) give the situation where the possibility of full employment merely is logical but not empirical. It is conceivable that power parameters and political reaction patterns are such that the economy remains in a state of unemployment forever.

Remark: In case (4.1), and when there are subpopulations of theorists ('those who know') and policy makers ('those who can do') then there is the *Van Schaaijk Corollary*: "Those who know, cannot do anything about it; those who can, don't know." The addendum here is that 'not-knowing' is no excuse for a policy maker who should know.

cg

There remains the interesting point of the potential difference between Pareto Optimality and SWF optimality, when information is the active variable. One may remember the bureaucrats in their plush jobs and the benefit recipients who enjoy their leisure. Here Lemma IV applies.

Definition: A situation is *Properly* Pareto Optimal (PPO) compared to an alternative iff it would be PO when some conditions are properly defined and interpreted - while it seems non-PO when these conditions are ill-defined and wrongly interpreted.

Lemma IV: For a BHL economy, regime 1

- (i) has the highest level of national income,
- (ii) is PPO compared to regime 0.

Proof:

- (i) Equation (3-t) immediately implies $Y(1) \geq Y(0)$.
- (ii) Regard the change from 0 to 1:
 - (B) permanent benefit recipients are not affected by a regime switch,
 - (H) $N(1) \geq N(0)$,
 - (L) $K(1) \geq B$.

Hence all agents improve in a material sense. Thus regime 1 is PO compared to regime 0, if we restrict attention to these income aspects. The actual choice is made by the SWF, and this choice includes power effects of the bureaucrats (who may want to maintain unemployment) and the unemployed (who enjoy leisure while on benefit). This contorted SWF can be cleaned up by proper contracts and execution of those contracts. Then PO is restored.

Q.E.D.

Remark: It stands to reason that if a change to full employment occurs, it is mainly because it is POC. This highlights the problem of wrong co-ordination.

Remark: In normal work-ethic conditions, the income-leisure utility considerations of the *I* low productivity workers improve too, when they move from forced leisure to a decent job. It is conceivable though, that the advance in net income does not compensate for the loss of leisure. Therefore, the concept of PPO is useful. In another respect, the voting power of *I* may be small, and when society decides that unemployment was a silly affair, the *I* may be said to have had an unintended bonus while it lasted. (Society might even try to recover that bonus.)

Remark: There is scope to define and judge PO from some fundamental rights rather than from the actual bureaucratic flux.

Remark: In an applied general equilibrium context we would have to deal with complexer aspects, like people fearing to lose their jobs, and

the loss of income resulting from crowding out. Adding 'approximately' would help Lemma IV surviving.

The general theorem

Definition: There is wrong co-ordination if a SWF optimal change is blocked only by 'lack of knowledge' of the power elite while the information, though not yet available, still could be found rather quickly by not much effort. (Co-ordination can go wrong on other counts too.)

Theorem G.1: If full employment is a controlable dichotomous state for which sound compact information exists in principle, that also can become available rather quickly by not much effort, then:
(i) full employment results from conscious choice or chance
(ii) unemployment results from conscious choice or from wrong co-ordination

Proof:

Work along the proof of theorem BHL.2. Note that BHL.2 fills in the properties that are now provided by hypothesis: controlability, soundness, compactness, and availability. Note that controlability means that the information exists in principle, while it need not be available yet.

Q.E.D.

Remark: Theorem BHL.2 thus gives an existence proof for this general theorem, i.e. shows that it is not vacuous.

Remark: The value of the theorem is that it focusses our attention on the perceptions that we have to deal with when judging the arguments in this book. Some questions to be answered are: (1) Do we still believe in full employment (only friction unemployment), or do we think that there are serious bottlenecks - or do we even think that we live in a probabilistic universe ? (2) Do we seriously believe that governments have done their best, or at least a reasonable effort, for (a) using available information, (b) finding additional solutions ? (3) Do we really think that the BHL-concept is useless, and that governments have been right to neglect the papers on them ? (4) Do we seriously believe that the PO-changes that seem so likely, are *not* POC ?

On the interaction of the reduced form theorems

Our analysis has not provided complete statistics on existing welfare states, and it can neither replace the need for more study, especially with the cornucopia of applied general equilibrium modelling. The analysis here does however fit in with the stylized facts. It is good strategy to apply logic to circumvent the uncertainty of parameter estimates. There is sufficient reason as well to accept that the two propositions forwarded here give main results in a nutshell.

The first proposition is that both unemployment and full employment are possible for the (BHL) welfare state. The second proposition is that unemployment follows from either conscious choice or wrong co-ordination caused by (deliberate) lack of knowledge, and full employment from choice or chance.

It may be emphasized that the logical force of the argument derives from the undeniabes both that one can take subgroup averages and that two points share a line. That line finds its translation, in economic vocabulary, of a social welfare function with a power interpretation.

Above discussion on information is a small step in formalising rather well-known insights. Formalisation, how small the step may be, can be crucial to get the statistics going, and in helping to establish what the state of the world actually is. Apparently we need statistics on what economic advisers and policy makers believe.

Above discussion provides a foundation for a policy conclusion, that it would be good for many welfare states with declared objectives on full employment to improve on informational procedures.

More on chance

The mentioning of 'chance' in the lemma and theorems induces a short discussion on randomness.

Let Queen Q fall in love with Prince Random PR. Q especially adores PR when he goes about the court with an attractive air of responsibility. To this end she gives him the job of Treasurer. However, PR does not know much about taxes, and true to his name he chooses tax exemption at random. Hence, any regime is 'subject to approval by official royal authority', and in this sense there is a SWF and maximisation. And only economists think that the economy or economic theory are relevant. On

the other hand, this is an incomplete sense of optimality. If PR happened to choose regime 0, then teaching PR about taxes would have Pareto Optimizing effects. In this sense, only one case is really optimal. This example shows that we can discuss cases with random elements, and that we can maintain our classification of cases. In fact, $Y(1) - Y(0)$ would be the ex post implicit price paid, in regime 0, by the Queen for decentralizing decisions to a nitwit. If PR has ex ante probability p of choosing regime 0, the ex ante expected loss is $(1 - p) \cdot (Y(1) - Y(0)) + p \cdot (Y(1) - Y(0))$. It is not very useful, however, to indulge in the notion of randomness, when considering the theorem. The stylized fact is that it is the (deliberate) lack of knowledge that is crucial here.

Book X

Conclusions

Some of the conclusions can be best understood in relation to the work of others. There are two sets of authors: those who take a general position and those who concentrate on the poverty issue.

41. Relating to Mankiw's "Principles"

Mankiw (1998)'s "Principles" textbook is becoming a corner stone in the education of economics - and very understandably so. As a teacher I would likely prefer this book myself too. It will be clear, however, that Mankiw's book does not mention many of the fundamental points made here. This makes that one would wish, and in a sense should predict, that Mankiw adapts his text to them. My own suggestion however is that we allow students the advantage to better appreciate the gap between economic thinking 'before' and 'after' the current new analysis. Such appreciation will be an asset to their historical perception and understanding of the role of economics in society. So, buy both Mankiw's book, as it is now, *and* this book, as a package deal.

cs

Discussing income redistribution, Mankiw states: "(...) here we digress from economic science to consider a bit of political philosophy." (p431) Tinbergen, Keynes, Marshall, Mill and Smith turned in their graves. Income redistribution and the underlying philosophies are a topic of Political Economy - and thus they still are economics !

Mankiw himself states: "When the government enacts policies to make the distribution of income more equitable, it distorts incentives, alters behavior, and makes the allocation of resources less efficient." (p421) and "The more equally the pie is divided, the smaller the pie becomes. This is the one lesson concerning the distribution of income about which almost every one agrees." (p441).

I find these statements problematic. The matter is put in a binary 'pro-con' manner. The same approach happens in the back of the book, when the student is confronted with 'pro-con' questions. Such an approach in itself stimulates debate, but decisions in reality are subtler. A 'pro' view can change into a 'con' view if a tax rate proposal differs by only a percentage point.

For the income distribution:

First of all, even if the pie would be smaller, the system still would be efficient. Mankiw uses the word 'efficiency' incorrectly, mixing up growth with efficiency, and stirring up adverse feelings against income redistribution by using a wrong accusation.

Secondly, indeed, if all incomes were equalised - as even the communist parties of Russia or China didn't and don't succeed in doing - the pie could get noticeably smaller. However, for the practical measures we are talking about - in the 40% - 60% range for the marginal rate - the change might not be that relevant. There are not only disincentives for the rich, but also incentives for the poor to participate in society. There are so many other effects. Alleviating poverty, by getting people into jobs, could reduce the crime problem. Or, a rich person may decide to work less and spend more time on a hobby or with the kids - and might find out that he or she is actually better off. The prime comment, and the prime economic observation, is that the pie itself is relevant, but the

social utility derived from it is even more relevant. If a democratic, Madisonian, society decides to redistribute income, that itself is evidence and proof that it moves to a superior welfare position.

It is true that a rich person may earn \$100,000 per annum and can be outraged by a 40% or 50% tax on it, claiming that society steals it. Strangely, while governments spend so much energy in monitoring the poor, they are quite reluctant to calculate the benefits going to the wealthy. The value of industries depends upon government regulations. The value of city property is also caused by public investments. What we earn now, depends so much on what our ancestors have been doing. It is truly difficult to determine what our own personal contribution is. The \$100,000 earned are only the proceeds from a market situation - but the market is an amoral beast, and not a god of justice that allocates what people 'deserve'. And thus, having such a marginal tax rate could well be one of the necessary 'rules of the game' to create a both prosperous and civilised society.

Mankiw shows an awareness of this on some pages, but not integrally so.

☪

On the subject of designing an incentive compatible tax system, he states: "Thus, policy makers face a tradeoff between burdening the poor with high effective marginal tax rates and burdening the taxpayers with costly programs to reduce poverty." (p440).

Well, indeed, this is the current view among economists - that this current book shows to be wrong.

☪

Mankiw's discussion on GDP seems rather balanced. Yet, for all his caution, he still seems to favour GDP as the "the single best measure for welfare", or "a good measure of welfare for most - but not all - purposes" (p490). I think that the latter still is unwarranted, and I'd rather would favour the conclusion: GDP is a crude measure for income - and I would keep some distance from welfare implications.

Mankiw (p490) tries at a short 'international comparison', and shows that GDP per capita 'tends' to associate with a higher life expectancy. However, he uses India, while Sen (1998:47) - discussed below - argues that the substate of Kerala (30 million people - twice as many as Holland) is quite different. Table 17 gives the 1993 data of Mankiw and the 1994 data of Sen (read from the diagram). In short, the 'tendency' that Mankiw notes is much like the 'storks and babies' regression - if the data are right.

Mankiw p515 slips into a 'summary statement' that textbooks are inclined to provide but rather should avoid: "Richer countries have more automobiles, more telephones, more televisions, better nutrition, safer housing, better health care, and longer life expectancy."

Table 17: GDP per capita and life expectancy

	US	India	Kerala
GDP per capita	\$24,680	\$1,240	\$500
Life Expectancy	76	61	73

Why, oh why, argue that a GDP measure can do more than it can do ? Why create the suggestion that governments employ sufficient numbers of economists, and that we don't need loads more ?

Mankiw's discussion would benefit from reading Hueting (1980) and P. Dasgupta & K.-G. Mäler (1999) on the environment. And on the causes for famines (p531) he could also benefit from a closer study of Sen's work. Perhaps there could be another 'principle of economics' here.

☪

I would think that a 'principles' book should contain explanations of 'ex ante' and 'ex post' and of 'animal spirits'. Perhaps I am European and perhaps I value a historic sense, but I really don't understand that Mankiw does not use the 'ex's, and only mentions 'animal spirits' on p722 without explanation. [119]

Similarly, I don't understand why Mankiw adopts the word 'natural

rate' and then explains that there is little 'natural' about 'natural'. Is this not obviously a stupid and ridiculous way of teaching ? Let us please ditch the word, and use 'system rate' (or rather CWIRU as above). Note too that Mankiw's 'explanation' on p566 that the system rate of unemployment "does not go away of its own" is awkward, since the economic system is heavily regulated, and events hardly ever are "of their own". There are always people taking decisions.

☪

There are some points on indexation. (1) The productivity slowdown - US output per hour dropped from 3.2% per annum in 1959-1973 to 1.3 % per annum in 1973-1994 - is related to GDP per capita, and this is dangerous, while it should be simple to include hours in the latter graph. The explanation for the slowdown remains in the air - and I would like to see mention of lower investments (due to lower profits and inflation uncertainty in the 1970s, and high real rates of interest since). (2) Mankiw does not provide much light on the 'CPI correction problem'. His p504 chart on GDP and CPI does not really clarify how Alan Blinder can come up with a correction of -1% per annum on the CPI. While the CPI of course is important for understanding the situation - e.g. the productivity slowdown and the Fed's inflation policy ! I should mention that I, at this moment of writing, am indeed in doubt of what to think about this American problem - and I am pretty alarmed by this insecurity. We should consider this a major failure of economics (or of government to provide for sufficient numbers of measurement officials). (3) On p544 we see the Dow Jones and S&P indexes mentioned, but not explained, while freshmen economists should be taught to laugh about the Dow Jones index - see also Bernstein (1996). (4) P404 gives a graph of the US ratio of earnings of college graduates to earnings of highschool graduates, and the ratio goes from about 1.6 in 1975 to 1.85 in 1995. Mankiw's graph looks dramatic, because of the chosen axis - and the graph thus should be redrawn with a normal axis.

☪

Mankiw (p502) states: "Congress could change the Social Security program so that benefits increased every year by the measured inflation rate minus 1 percentage point. Such a change would provide a crude way of offsetting the measurement problems and, at the same time, reduce government spending by billions of dollars each year."

What kind of argumentation is this ? Well, we could also slash all Social Security: and also get rid of the measurement problem and save billions more ! Pity the US, with all the students who have only one course in economics, and then get Mankiw's "Principles" !

My own analysis shows that indexation on income is rather more advisable.

☪

Where Mankiw discusses the labour market (e.g. p565), I miss the ILO dictum: "Labour is not a commodity".

☪

Mankiw's final chapters give an overview of macro-economics. I have some doubts on this presentation, in particular where macro demand and supply curves are made price sensitive - while Keynes showed that the aggregate price is rather an income. Anyway, my own present book itself is an amendment on economics.

It remains interesting to note Mankiw's statement on p574: "It is, however, important to note why minimum wage laws are not a predominant reason for unemployment." Well, they are - and they can have large multiplier effects.

42. Relating to Krugman, Phelps, Ormerod and Heilbroner & Milberg

Krugman, Phelps, Ormerod and Heilbroner & Milberg have produced forceful analyses on the current state of the economy, society and economic theory itself, and all with a distinct attention for unemployment. These authors agree on many points, but disagree on

major points too. Interestingly, where these authors disagree, my own work offers new answers, on angles clearly not considered by them. My analysis solves conflicts, fills gaps, and complements on useful points. By relating my work to theirs I hope to enable these authors and their readers to plug into - what I consider - a new synthesis for (a renewed) mainstream economics.

Introduction

Mainstream economics appears to accept high rates of (equilibrium) unemployment as the apparent characteristic of the modern economy. In this view, unemployment is not inefficient, but the unavoidable price to be paid for other desirables. Take for example the case that the United States has low welfare provisions, less unemployment but more poverty and many prisons, while the European Union has high welfare provisions, high unemployment, less poverty and far fewer prisons: these differences then are explained in terms of political choices for example about institutions, labour market flexibility and employability; and it is suggested that such choices are made at the efficiency frontier. Research economists however are more focussed on the question whether current policy really is optimal and whether current unemployment is really (in-) efficient. The search is for a Pareto improving solution such that some can advance - notably the unemployed and the poor (underemployed) - without costs to the others.

Specifically, Paul Krugman, Edmund Phelps, Paul Ormerod, Robert Heilbroner & William Milberg) and myself have tried to supplement the mainstream approach. The first authors have received a lot of attention, but did not succeed in finding a Pareto improving solution to current unemployment. My analysis has received little attention, though I must confess that I did find such a solution.

In the following I'll concentrate on the major issues, and then refer to that part of my own work that links to the work of these authors.

Review of positions and qualities

The other authors and myself have come up with different answers on the causes for and solutions to current unemployment. Table 18 reviews the different positions.

We may also note that most authors do not (explicitly) refer to each other. The reason for this may be practical, in that books that appear in 1995 may have difficulty to refer to Phelps (1994). We may also note that even though the inflation-unemployment relationship is crucial to the analyses of all, the focusses differ. Disagreement often leads to neglect rather than to explicit criticism, and it may well be that I have selected top scorers of different citation communities. However, all authors may be justified in neglecting one another. No one of them gives an essential contribution to the understanding of current unemployment. Theoretically their work might be skipped, as I did in practice while developing my analysis.

Table 18: Different positions

	<i>Causes and solutions on unemployment</i>	<i>Refers only to</i>
<i>Myself</i>	Taxes & the Trias Politica structure	Phelps (1994)
<i>Krugman</i>	We don't know	Phelps 1967-70
<i>Ormerod</i>	Moral values & collective responsibility	
<i>Phelps</i>	Subtle combination of turnover costs etcetera	
<i>H&M</i>	Lack of a positive 'vision' of the public sector	Phelps 1967

At a lower level, when we look into details, then there are more points of overlap. An analysis of a practical economic problem (in this case unemployment) of course must have an econometric substratum in order to be taken seriously. Table 19 contains three technical issues, the shift of the Phillipscurve and the influence of technology and globalisation in the model. Here economics would advance if the authors could convince each other (allow me to add: of my analysis).

It also appears that some of the differences originate from the *styles* of analysis, which styles also have to do with roots. Ormerod, Phelps and myself have **econometric roots**, Krugman's first love was history (see

Krugman (1993)), and Heilbroner is clearly a literary economist ('though' *summa cum laude*, Harvard 1940). (I don't know about Milberg.) It is important to identify these styles.

I like to use econometrics in the way Jan Tinbergen did. It should be **technically sound**, but not fancy for reasons of its own; it should be relevant for a serious problem, and communicated to the general public in a responsible, **modest** but still **clear** manner (even if clarity makes it sound immodest). I also am very much interested in philosophical aspects (what H&M calls the '**vision thing**'), which however is not quite the style of Tinbergen. It appears that the various authors do not share all these qualities in the same degree. Taking these criteria to classify the four authors and myself gives Table 19. The names in the table are in alphabetical order. Actually, Table 19 summarises the discussion below.

Table 19: Comparing on style and content

	<i>Yes (comparable to me)</i>	<i>No (not so)</i>
<i>econometric roots</i>	Ormerod, Phelps	Heilbroner, Krugman
<i>technically (fairly) sound</i>	Krugman, Ormerod, Phelps	Heilbroner
<i>modest & clear</i>	Krugman	H&M, Ormerod, Phelps
<i>the vision thing</i>	H&M, Ormerod	Krugman, Phelps
<i>technology isn't the cause</i>	Krugman, [120] Phelps	H&M, Ormerod
<i>globalisation isn't the cause</i>	Krugman	H&M, Ormerod (Phelps ?)
<i>uses a shift of the Phillipscurve</i>	H&M, Ormerod, Phelps	(Krugman ?)

Krugman: "We don't know"

The world should be very grateful to Paul Krugman for explaining economic essentials, and not only for these explanations themselves but for his choice of words as well. Krugman's writing are a display of fact & logic and scientific argument and humour & good will: a quality blend that one hardly ever sees. I can only presume that you have read these books, [\[121\]](#) and then continue my line of reasoning.

My thesis differs from Krugman's in one major respect. He claims that "*we don't know*" about the causes of the productivity slowdown - whereas I claim that 'we' do. [\[122\]](#)

The following Krugman quotes are useful - and testify of his intellectual honesty:

1. "I find that almost anything having to do with taxation is better than a sleeping pill". Krugman (1993)
2. "But let me cut to the chase: the real answer is that *we don't know*." (1994b, p5, his italics)
3. "The key objective of the supply-side tax reduction was to lower marginal rates, that is, the rates that people pay on any additional income they make. That makes economic sense: marginal rather than average rates determine the incentive to work and invest." (1994b, p155) Comment: I have shown this to be false.
4. "I'm not an expert on taxes." (Said in a public exchange following his Tinbergen Lecture 1996, to be published by the Dutch "Koninklijke Vereniging voor Staathuishoudkunde" - Royal Dutch Association for Political Economy)

These points are relevant for understanding:

1. See my analysis on taxes.
2. Krugman (1994a) makes a big issue of productivity.
Comment: Quite correct.

Note that I am rather sure about the explanation of and cure for the productivity slowdown, but that my certainty derives from mathematical proof and trained intuition, and not from an econometric model exercise on the (world) economy. My analysis does not invalidate what others have said on the shift to the service economy - and the difficulties of measurement - etcetera, while I also present relatively new insights.

One of the ideas that I would have liked to look into, but have had no time for, is, that the return on consumer investments (like home improvement for the elderly) may be larger than that on financial stock ("savings"), and that this return is not adequately accounted for (also as a tax base).

Another idea, also emphasised by Phelps, is that real rates of interest are high (anyway). A major cause is that Central Banks have to be tough, given the

reduced competition on the labour market. Another cause is that government doesn't dare to raise marginal rates given the current misconception about taxes; so governments borrow (at a higher rate) what actually should have been taxes. Subsequently, investors buy government bonds and grow lazy and spoiled about taking risk (that otherwise would have spurred productivity). [123]

3. Krugman (1994b) p186 onward discusses East Germany and its relation to the downfall of the European Monetary System. The story is familiar: the then-existing policy paradigms of the EMS forcing a recession in Europe when Germany raised its interest rates. Krugman suggests that exchange parities should have been adjusted before the markets forced this. He suggested that preoccupation with fixed rates seduced policy makers to adopt the Maastricht Treaty on the EMU: "(...) by early 1993 political and economic stresses had made the solemnity of Maastricht seem almost comic. If there is a lesson here, it is that serious and dignified men and women in impressive international meetings may have absolutely no idea what they are talking about." (p192).

Comment:

This is too quick. When Germany decided that wage earnings in the East should be equal to those of the West (to reduce migration), it should also have decided to let wage costs reflect productivity. This is a better approach than parity adjustment; and known at the time, see my work and the Financial Times editorial "Time for Mr Kohl to act", July 26 1991.

In the same way, EMU can still aspire at monetary stability, and this can be done when countries use their tax structures (thus, structure as opposed to level only) to balance wage costs with productivity. Even though EMU is not a logical beauty, and East Germany still suffers from a wrong policy mix, the gut feeling of EMU - one economy, one means of payment - was admirably correct. This is even clearer given my work on taxes and their influence on wage costs.

Note that many top economists make fun of EMU instead of providing answers of how to deal with the policy challenge. This is not so professional.

One possible answer is the following. With one rate of interest for the EMU territory, and rates of inflation differing by regions (countries), real rates will tend to differ. Some markets will be interested in the real rate instead of the nominal rate. So loans indexed to the local inflation rate might suit many, for example Dutch government and Dutch pension funds, for part of the portfolio.

The following points are only interesting:

1. Krugman makes a point that income developments are fractal. Lawyers get much more than cleaners, but top lawyers get much more than average lawyers. Comment: Ditch 'fractal'. It still is a lognormal distribution.

2. Krugman (1994a & b, 1996a) suggests that international influences are less important, due to the size of proportions, than commonly thought. Yet, he himself (1996b) comes with the 'parable of clocks': international fluctuations may get into phase, similarly like clocks.

Comment:

So, though fluctuations may only be the cream on top of fundamentals, there still is a new research topic.

Note too that the Great Depression and the Great Stagflation were OECD phenomena and more than 'cream on the top'; these may be traced to the Trias Politica.

3. Krugman (1993): "I had some trouble getting that paper published - receiving the dismissive rejection by a flagship journal (the QJE) that seems to be the fate of every innovation in economics".

Comment:

My experience is the same. People in responsible position have the awkward tendency to start criticising before asking questions. They fail to see that their criticisms can be formulated as questions - which then are a reason for publication. And they are insulated against protest to this injustice. I recently came upon some beautiful comments by Bellman (1968) on the evolution of scientific ideas. Note, though, that Krugman's wonderful books since 1990 have only been made possible since my analysis has been blocked from general attention: so that is a form of comfort.

4. Note: With respect to Table 19, I've hesitated about classifying Krugman as having less roots in econometrics. His credentials as a technical economist are quite adequate. But, my experience with econometric modelling has been extensive and will not easily be copied. Also, I don't particularly like the topic of taxation myself either, but it only by going through the details of a complete model (too) that I came upon that explanation. Though, Paul may make me regret this classification.

Addition 2004: Krugman (2001), "Fuzzy math", and particularly (2003), "The great unraveling", are advised reading for anyone who wants an enlightened view on the world economy. Yet, Paul Krugman has not yet benefitted from reading the analysis in these pages, and the reader must make amends for that.

Phelps: "Structural slumps"

Phelps (1994) is as creative as the others, but also the technically most advanced author who also presents econometric tests for some of his conjectures. His book is impressive.

My first reaction in 1994 to Phelps's book was guided by his

explanations in plain English. Given those explanations, his study dropped in my priority list. My attitude is (in line with Tinbergen and Keynes) that substance comes before technique. So it may come as a surprise to the reader that I as an econometrician did not jump to the occasion to comment on Phelps's techniques and tests. But of course, had I had more time, I would have studied those pages too. And of course it is still appreciated that Phelps has produced these technical pages. They have affected his style, and they allow for wider tests at a later stage. Indeed, for the purposes of this chapter, I have looked into the estimation sections more deeply. My comments below however remain preliminary, since, indeed, I have not fully read all chapters.

The major comments are:

1. Phelps (p374-375) is sceptical about how politicians abuse economics, and about how economists themselves react to (new) ideas.
 Comment:
 Talk to Krugman, and study my analysis on the Trias Politica.
2. Phelps: "There is already a moral-philosophical case for employment subsidies targeted at the low end of the wage scale to bring the rewards for work not having a high scarcity value more nearly in line with the requirements of economic justice." (p366) and he seems to approve of proposals also made by Dennis Snower.
 Comment:
 I even show that these measures cost nothing and are Pareto improving. Do you agree that there may be an 'equilibrium' in your sense, but inoptimal? (See below.)
3. Chapter 18 contains a 'concise postwar economic history'.
 Comment:
 The reader is invited to compare that history with my amendment to the Bruno & Sachs story.
4. Phelps catalogues monetary aspects as temporary ('high frequency') and nonmonetary aspects as structural (see p4 and 335).
 Comment:
 I agree that it is valuable to look at nonmonetary effects. But the major issue is the Phillipscurve, a relation between unemployment and inflation, and thus it is difficult to neglect monetary policy. When Central Banks have a wrong theory, and cause the rate of interest to rise, then this should be in the model. On page 314, the acceleration of prices (change of inflation) is introduced in a Phillipscurve in an ad hoc manner. Similarly, on page 329 the possible influence of Bretton Woods is discussed, and Phelps remarks that this system allowed for adjustable pegs - but then misses the point that the pegs were pretty fixed in practice. No doubt, Phelps will agree that the whole story contains both elements.
5. Phelps uses the calculus of variations, and his marginal tax rate is $\partial T(y)/\partial y$.
 Comment:
 This is proper in this theoretical development, but it should be replaced by a dynamic marginal rate when the theory is translated to the real world. In chapter 29 it is explained what I mean by this, and it is shown that this dynamic marginal rate may be close to the average rate. Curiously, Phelps's econometric exercise uses average rates (p 314 & 318), and finds a contractionary relationship. In a sense, this supports my analysis, which allows lower average taxes and thus lower unemployment. However, I think that the estimated equation is too simple for the true model.
6. Turnover costs appear to be very effective in one of the major models.
 Comment:
 That would mean that a simple subsidy would have huge effects. This does not seem realistic. The huge effect comes - I surmise - from the homogeneous labour assumption, and it is more appropriate to assume heterogeneous labour.
7. "The shifts and long swings in unemployment are an equilibrium phenomenon, not a matter of misperceptions or misforecasts and consequent wage-price misalignments" (p vii). Phelps then uses "(...) the *equilibrium* case in the expectational sense of the term: the case of *correct expectations* about the course of the economy." (p1)
 Comment:
 The Moon falling on and past the Earth - and expecting to fall so - is a story of *disequilibrium* and of *equilibrating forces* but also of *equilibrium*. What you use is just a matter of perception and of words. More important is the inoptimality of present unemployment. Phelps writes on optimality: "(...) much of what we measure as unemployment reflects job rationing, hence is involuntary and imposes private and social net burdens (...)" (p viii, see also Phelps p9). Thus note that there is another concept of the "natural rate" (NAIRU), namely the market clearing rate. Even when expectations are correct - even when happens what you predict - then you can still be unhappy about that and look for change; and thus there can still be forces towards the clearing rate. Fulfillment of expectations is not the only utility that you are after. Phelps's emphasis on the expectations definition suggests that his analysis is incomplete. Inoptimality may also have causes in the political structure, a point that gets less

attention by Phelps regardless of his comment on p374-375.

8. Phelps: "A worldwide increase of public expenditure (...) was not found to be expansionary (...) The same is true of a worldwide increase of public debt. (...) Prudence requires putting aside the Keynesian approach for the time being in favor of taking up the structuralist approach." (p330)

However, the page before: "(...) the economy is so complex an organism, so to speak, that it would be naive in the extreme to imagine that, at long last, the true macroeconomic model of equilibrium unemployment determination had been discovered. A question that permanently looms over any such research as this is whether the results interpreted as favorable to the theory are in reality the expression of some mix of other theories, some likely to be old and some *not yet known*." (p329)

Comment:

I fully agree with the statement on page 329 but think the statement on page 330 overdone. The body of neoclassical thought is too big and strong to be replaced by a mostly ad hoc econometric exercise. This is hubris !

For starters: government expenditures rose as a result of unemployment benefit payments. So there is a positive relation between unemployment and expenditure. Secondly, "Keynes" is much more complex than the simple idea that deficits would reduce unemployment. Macro-economics aspires at wise management of economic development, only occasionally using deficits to reduce unemployment. (What politicians do, is another story.) One needs a more complex structural model to disentangle the various relationships, instead of a two-equation reduced form estimate as Phelps does. [124]

Less important comments are:

1. "The natural rate moves!" (p vii)

Comment:

The book suffers from the emphasis on the novelty of this idea. However, the nonconstancy is part of its definition, and this was not so revolutionary, in 1994. For example, see Solow (1976). It was a common notion to me in 1989/90 when I generated my analysis, and Phelps (p xii) mentions a 1979 paper by Jeffrey Sachs. But note that the book reflects a 20 year research project, e.g. Phelps discusses on page ix early models of the early 1980s that assumed a constant NAIRU. So it may well be that some researchers settled for constancy, and that it was a struggle for Phelps to get rid of constancy; and we should be tolerant of struggles like this. But, objectively, the emphasis on a non-novel idea is out of touch with modesty.

2. The opposition of "structuralism" to "neoclassical" (p14-19) is rather constructed, and not modest again.

3. "(...) historical evidence that unemployment is (or was) trendless (...)" (p x)

Comment:

Agreed.

Note, though, that my analysis is that due to differential indexation of taxes and subsistence, there is a trend in a component of unemployment (namely, minimum wage unemployment, and poverty (underemployment)).

4. On technology: "the theory averts any implication that secular productivity growth puts the equilibrium unemployment rate on a trend (...)" (p xi)

Comment: Talk to H&M.

5. "(...) the present study is the most comprehensive econometric model of unemployment to date" (p 313).

Comment:

Well, there is Lawrence Klein's Project Link, there is etcetera.

6. Phelps (p352) relates to Jude Wanniski, an 'amateur fiscal theorist' who wrote 'an interesting book', and dismisses him as a serious thinker. On p353 Phelps speaks about 'professional theorists in the supply-side movement' without mentioning names.

Comment: See Krugman (1994b).

Note that the editorial of the Wall Street Journal of October 17 1995 quotes the then new Nobel Prize winner, Lucas: "I have called this (...) an analytical review of 'supply side economics', a term associated in the United States with extravagant claims about the effects of change in the tax structure on capital accumulation. In a sense the analysis I have reviewed supports these claims. In what I view as conservative assumptions, I estimated that eliminating capital income taxation would increase capital stock by about 35%. (...) I believe we would be a better society if we followed their advice."

Also, in 1999 it appears that the 1999 Nobel Prize winner Robert Mundell has been the leading force behind that Reagan Supply Economics programme - though he let Laffer take much of the credit.

Addition 2004:

Phelps (1997) is advised reading and usefully available on the internet. It is short, eloquent, compelling. The reader comes away from it for 99.99% convinced. My first impression was to support it also for the remainder. However, there is the Keynesian point that investments cannot be left to the market. There must be some macro-economic management and an Economic Supreme Court to safeguard that management. Phelps (2000:88) unfortunately states: "The extraordinarily low unemployment rates in continental Europe in its "glorious years"

from the 1950s to the mid-1970s were the result of special circumstances” This is either an open door, in that 1950-1970 are not the historical average, or a misguided view that they cannot become the average. Phelps’s (short) analysis of that period does not include the analysis of the tax void yet.

Similarly, Phelps (2000:90) “It is now dawning on policy discussion, in Europe and to some extent in America, that countries can engineer a reduction of unemployment without a sacrifice of low-end pay or a rise in low-end pay rates without a sacrifice of employment (or some of both). This can be done by means of tax-subsidy measures that produce a favourable shift of the inclusion locus. Already several countries have introduced, some many years ago, fiscal programmes aimed to do just that, though generally on a small scale and often targeted at particular sub-groups in the low-wage population. Taking such a step on a large scale – large enough to make a big difference – involves a paradigm shift in political economy that some policy makers are not yet ready to take.” This issue has been discussed by this author since 1989 and in this present book again and one would wish that Phelps got time to read it.

Phelps (2000:99) “Such tax relief is seriously cost-ineffective next to graduated employment subsidies owing to the way that personal income tax liability is formulated. The budgetary cost of graduated employment subsidies is only the disbursement of the subsidies to the firms employing low-wage earners, since high-pay employees are ineligible for such subsidies from the first euro earned, while an equivalent disbursement of income-tax relief in the low brackets – for example, the first \$16 000 of annual income – will cost the government the loss of tax revenue on all higher earners’ first \$16 000.” This is absolutely unfounded. See Figure 28 or Figure 29 that shows that this is not the case. Furthermore, in a reduced form there is no difference between tax reduction and wage cost subsidy, which means that they can be translated into each other.

Ormerod: “Death of economics”

The book’s name “*The death of economics*” is not inviting to serious research. One may appeal to a “*The King is death. Long live the King !*” approach, and indeed Ormerod’s last chapter “*Economics Revisited*” seems to suggest this. But this is so round-about and distractive ! Why first make people believe that you want to get rid of economics, and then tell them that you have a better economic analysis ?

This way of presentation also gives too much credit to decisions makers. Politicians and economic advisers who believed in those theories are presented as misguided persons, and victims of failing theories of old. Just as anybody can make errors. However, the proper story is that illusions and ideological views have been maintained in the face of contradictory evidence, and against the advice of renowned economists. Ormerod’s presentation obscures this evidence and its meaning. The proper story, that Ormerod misses, poses the question of reform in the structure of economic decision making.

Agreed

I agree with Ormerod: “The whole challenge of economic policy is to shift the attractor points around which the economies move, and hence the whole solution path of the economy over time.” (p208)

Disagreed

1. He claims that there is a new analysis of unemployment moving around an “attractor” (that itself can move).

Comment:

This attractor is nothing else but the NAIRU. It is true that it can be clarifying to shift from the conventional parlance to the parlance of chaos theory, but it is not revolutionary as claimed. The same immodesty as Phelps.

2. He defends the macro-economic approach, e.g. on using a rather simple relation between inflation and unemployment.

Comment:

Defence is fine, but the correct approach still is based upon micro-foundations.

3. Ormerod writes: “The distinguishing feature of chaotic systems is that their behaviour is impossible to predict in the long run (...)”

Comment:

The word “chaotic” means “deterministic looking like random” in mathematics. Above quote is only true for (systems of) equations with a random term somewhere.

“Chaos” has the connotation “random” in the public mind, so it might be best not to use the term in books for the general public.

Ormerod gives much attention to uncertainty, and the way that he presents it

carries with it the suggestion that nothing can be done about unemployment. Though uncertainty is important to macro-economics indeed, it however is not really relevant for his main thesis that something could be done about unemployment. Quite tiring.

4. He claims that the 1950s were a special period of reconstruction, in the sense that the success of these years is not easily repeated.

Comment:

In my analysis, the conditions of economic success can be influenced, and similar results achieved again. The mood of optimism would follow the results, rather than conversely (though there is feedback too, of course).

5. Ormerod: "So what can be done ? One solution to the problem of high European unemployment, for example, is work-sharing." (p207) To achieve this, he appeals to social values.

Comment:

But work sharing is not necessary (see my work in general), and less easy to achieve anyway.

6. Ormerod: "But perhaps the most important point of all, linked though it is to the underlying mathematics, must be stated in words, for it is a question of moral values. The concept, rampant in the free-market philosophy of the 1980s, that there is no such thing as society is one which, if it is allowed to persist, will prevent the creation of full employment regardless of the form which economic policy takes." (p211)

Comment:

There is little use in discussing whether there is or is no "society", since it would seem to be a matter of definition. If a government would choose not to solve unemployment, then this should be accepted in a democratic society. It is a different thing that we now can show a solution to inefficient unemployment, since that is a matter of logic and intellectual honesty.

H&M: "Crisis of vision"

Heilbroner & Milberg (1995) are very wordy and imprecise - and the many words are used for hyperbole instead of exactness. It is very easy to get irritated.

There are only a few points that I agree with, but even these points are formulated vaguely and annoyingly, and my comments are guarded. Also, to reduce the irritation, I only usefully comment mainly on chapters 1 and 7:

1. H&M: "(...) Keynesian theory can be judged a success (... when allowance is made for ...) bargaining power of labor." (p57) and "Stagflation has come to an end with the political and economic events of recent years. The bargaining strength of labor in the advanced industrial countries has been threatened in part by the rise of international competition." (p59)

Comment:

Advanced nations are 'service countries', and see Krugman on "international competition". Bargaining power is a very important variable, but you go too fast on the impact of international competition on that. [125] Taxes are neglected. With unemployment and poverty so large, we are only at the low inflation asymptote of the Phillips curve, and stagflation is not dead yet. Strangely, H&M's book is motivated by social problems, but the problem is declared dead ! In other words, they don't see that their problems are caused by stagflation.

2. "(...) the extraordinary combination of arrogance and innocence with which mainstream economics has approached the problems of a nation that has experienced twenty years of declining real wages, forty percent of whose children live in "absolute" poverty, and which has endured an unprecedented erosion of health, vacation, and pension benefits. (reference) The commitment to full employment legislated in 1946 has been "honored" in these socially destructive years not by vigorous employment-generating programs such as the reconstruction of its cities, but by redefining "full employment" as a higher level of unemployment." (p6)

Comment:

Agreed on the concern, disagreed on the rest. Do not mix up politics with economics. See Krugman's description of how policy fashions drifted from economics proper. Also, there were serious questions regarding the causes of unemployment, and these questions cannot be played down so easily and derogatory.

3. "It is the legitimacy of the public sector within capitalism that lies at the core of the contemporary crisis of vision." (p120)

Comment:

They are too vague on this, so they might as well be wrong. But agreed in principle, see my advice to adapt the Trias Politica.

In general, H&M don't clearly distinguish between economists as scientists (who have all the time of the world to doubt) and economists as policy advisers (who also have to take into account that decisions have to be made here and now).

4. "(...) the mark of modern-day economics is its extraordinary indifference (to the connection between theory and reality /TC). At its peaks, the "high theorizing" of the present period attains a degree of unreality that can be matched only by medieval scholasticism." (p3-4)

Comment:

Yeah, for “peaks”: that may be. It is good we have those peaks.

“Analysis has thus become the jewel in the crown of economics. To this we have no objection. The problem is that analysis has gradually become the crown itself (...)”

Comment:

Well, that is an overstatement. Is the suggestion that all economics now is a “peak” ? Besides, did you really look at the practical work at the relevant institutes ?

H&M miss the point that my analysis is fine work in the mathematical tradition, and that it is neglected by many (by him too). Rather than downgrading all math, they should highlight the work that matters, and state the reasons why it matters.

5. H&M see the following causes for unemployment:

- a) “On the domestic front, they include a technology of rampant automation that has created severe employment strains in all advanced countries (...). The result is prospective increasing dependency on government-financed programs of unemployment relief or public works.” (p120-121)
- b) “Meanwhile, on the international front, (...) “globalization” of production carries unsettling implications for all advanced capitalisms, including the lowering of social, environmental, and labor standards (...)” (p121)
- c) Other issues are volatility of financial flows, demography and immigration, ecology and nationalism & terrorism.

Comment: This is bad economics. See Krugman & my work.

H&M’s book is recommended on the back-flap by Lester Thurow as “essential reading”. They and their readers are advised to read Krugman on Thurow.

There is a final caveat. With my European background it is easier for me to see the value of government involvement, cost-benefit analysis and policy analysis. I am not familiar with the American academic situation, and it may be that H&M really have a case that these aspects are underappreciated in the US.

Note 2000: I found P. Dasgupta (1998) also criticising Heilbroner. My problem in this discussion is that both authors do not adhere to the definition of *economics*, and thus don’t really communicate. Many of Dasgupta’s points however are accurate. On the other hand, what is of value in Heilbroner’s view is that Political Economy seems to be getting less attention than one might hope for. This point is not really answered by Dasgupta - who seems to neglect the Political Economy issue of *integration* of scientific knowledge for the management of the state.

All authors

All authors advise their colleagues, policy advisers and politicians. All however accept the current institutional setting of economic policy making, and accept that their thoughts get less unbiased attention than could be useful.

My advice however is a constitutional amendment for an Economic Supreme Court. The lack of sufficient checks and balances is a major cause for the tragic economic record of the last century. When experts know of Pareto improving possibilities, then policymakers have too much freedom to neglect this. Policymakers have too much freedom to pursue their own pet theories even in the face of contradictory evidence.

43. Relating to Sen, Galbraith and Cox & Alm

Sen: “Development as freedom”

When Amartya Sen writes a book, it is likely a useful one. Sen (1999a) will help economists to refocus on freedom instead of income, as Hayek once tried but failed to convince. Sen admits that his message is not new (see p289). But when it has been forgotten, or told unconvincingly, then it sounds pretty new.

One of the prime reasons why Sen is convincing, is that he makes the connection with Adam Smith’s ‘sympathy’ argument. Sen is both liberal *and* social, and presents freedom as a private *and* social goal. Hayek often got out of touch with ‘sympathy’, or at least allowed that reputation to grow.

One of the prime reasons why economists have been seduced to put income before freedom is pure pragmatism. Income is a quick and dirty

variable - and by itself already hideously complex to properly administrate and monitor. Income tax laws and the execution of them require huge bureaucracies. Price index measurements are a monk's paradise. Maintenance of fair incomes requires extensive labour relations and social security laws. And this is just simple income.

If we would look at the freedoms, then we get unobserved variables, their unobserved shadow prices, and a proliferation of equity questions. While we seem to have gotten used to a concept like the 'income distribution', we draw a blank with a 'freedom distribution'. The issue of the (im)possibility of utility comparison comes strongly to the fore again - and the question again arises whether 'utility' is a proper concept in the first place anyway.

The fact that income is such a pragmatic variable however does not absolve economists from their task of thinking about the proper meaning of, and means for, The Good Life. While it certainly may take some centuries more to solve most of the Grand Problems of the 'freedom distribution', in the short run economists still need to think on the matter.

One of the most powerful arguments in Sen's book is that he shows that some policies are clearly misguided from a freedom point of view: So that we don't need Grand Solutions to start correcting some errors already. Where developing countries experience problems providing for basic freedoms, there we find that many of these already have been solved to some extent, namely in the Western nations.

Sen slowly but systematically demolishes the 'different cultures' arguments, and shows that these cannot be used to withhold basic freedoms. The idea, so popular in the West - and a reference is Barro (1996) - that poor countries first need to develop up to a certain income level, before they can afford e.g. democracy, is a contradiction in terms, a serious error of judgement, and a disaster for the billions of paupers concerned: for they are denied their freedoms and thus will remain poor and underdeveloped for much longer. The pitfall for (regression) analysts like Barro (1996) is that they take income as the prime target, and investigate whether 'more freedom' correlates with 'more income', presuming that the latter is the most interesting. But when the true variable is The Good Life - also defined by a low infant mortality or the absence of famines - and when it can be shown that it requires a certain level of democracy if such horrors as famines are to be prevented, then such (regression) analyses are terribly misguided.

Perhaps this summary does injustice to the intentions of these researchers, but the point is true that there exist such views, and that Sen is only one of the few academics to seriously oppose them.

Solutions for freedom as they exist in the West can be tried in the developing countries as well, and, while cultural adjustments indeed may be required, *adjustment* is something else than *withholding*.

Sen's analysis will provoke much discussion. Researchers, like Barro, will be challenged to reconsider the issue. The policy makers at the World's capitals will be challenged as well. Certainly the 'cultures' argument will be a strong subject for contention. The prime thing to hope, however, is that the academic tendency to research, research and research will not be abused by the politicians to bury the Sen argument - and we can only hope that the scientists are aware of their responsibility in this.

On the cover of the book, Kofi Annan, the UN Secretary General, already states gratefully that the UN "has benefited immensely from the wisdom and good sense of Professor Sen's views". This is wonderful recognition. But we can clearly see that this is only a beginning of a longer change. As a question, that I perhaps may raise myself, I wonder whether it would not be time to take the World Bank from its current track on traditional 'income economics', in which it has become so set in its ways, and change it to monitoring the freedoms. On second thought, it would be a pity to throw this current expertise away, since income still is something useful to have - if I may put it that way. Would it not be much better to create a new 'Liberty Board', or whatever name, for the administration, help, guidance and inspection on such freedoms? In fact, as Sen clarifies, the freedoms can arise in all dimensions of human life, and can have surprising interconnections. Logically, one would have to monitor freedoms in all such dimensions - as, in fact, governments in Western nations have all kinds of Ministries and Agencies. Logically, again, the UN might as well mirror that kind of organisation. "Rest assured," I once remarked to Jan Tinbergen, "that world government will come about surely, one day." - and I got a smile as a response. It would be good if this logic could be echoed in the advice of our fellow

economists to the larger public.

I enjoyed a certain perspective on Adam Smith. First the Smith quote:

“Whenever the legislature attempts to regulate the differences between masters and their workforce, its counsellors are always the masters. When the regulation, therefor, is in favour of the workmen, it is always just and equitable; but it is sometimes otherwise when in favour of the masters.” (Sen:323).

The perspective is that Smith’s aversity against government meddling derives to some, and perhaps a large, extent from such imbalance of power. Conservative political views of Smith emphasis the first, no government meddling, but forget the precondition. In a democracy, Smith would well have come to a more positive approach to government influence - no doubt still critical, but less averse to meddling in principle.

A point of critique. Sen compares the population control in China, based on restrictive laws, with that in Kerala, India, based on emancipation of women and on influencing convictions under basic freedom of decision. He finds both equally effective. The Kerala approach then clearly is preferable - while, Sen critically notes, the Chinese one may also result into problems when there is a political crisis and people no longer believe the authorities. He uses this to show that freedom is both a target and a means. My problem with this comparison is that Sen, while surprisingly subtle in many points, may not be subtle enough. There are many differences between Kerala and China, and not just the difference between these policies. As once found for Italian districts: their kind of democratic attitude and level of economic development were found correlating with their kind of government in the 15th century city states. Nature’s way are quite complex and surprising. Yes, this is precisely the ‘cultures’ argument, the major bone of contention.

My point therefor is that Sen’s argument is convincing at a logical level - which means that we thus must reorganise Development towards the Freedom paradigm - but that for each separate issue it is up to the specialists to determine their findings. I don’t have to decide about birth control methods, but I can agree that freedom is an important variable that needs to be taken into account, as means and objective, and it is useful that there is an agency that helps the Chinese government to see how they can improve their policies. With lots of diplomacy, good dinners and the big stick of public opinion.

Sen’s analysis nicely fits my own analysis: that basic economic necessities have been neglected by our governments, and that economics itself has played a bad part in this. I have concentrated on Western unemployment and poverty, referring to lack of freedom from the perspective of Montesquieu, and referring to Roosevelt’s Four Freedoms. Sen considers development or the whole economic problem relating to The Good Life. Strangely he does not refer to Roosevelt. But our arguments supplement and strengthen each other. Also, one of the implications of my analysis is that when all governments start having Economic Supreme Courts, then these will exchange information, and this will create a network of international co-ordination, which is another part of the solution to the ‘world government’ problem.

Sen rightly comments that Europe only gives money to the unemployed, but takes away their freedom and right to a normal life with professional and social recognition. A point of critique is that he does not seem to understand the cause for European unemployment. My hope is that he gets to read my book and will agree with my analysis.

Sen also does not see yet the proper solution to the Arrow paradox. I have discussed his statements in an appendix to the ‘Arrow chapter’ above. We should note that Sen in some respect suffers from a tragedy. On the one hand he wants to explain that social decision making is important (for example to guarantee freedom), on the other hand his erroneous presentation of the Arrow Theorem has blocked good research into social choice and has induced many to become very critical of social decision making.

In a next edition, this should be adapted: “The butcher sells bread to the consumer (...)” (p256). We find the correct ‘meat’ a few pages later, so it is not because Sen is vegetarian.

Sen’s discussion of Hayek I discuss again in the Hayek appendix below.

It should be observed that, when Sen’s argument is stripped from all its footnotes and its rooting into economic theory and history for the sake of the economic community, then many of the key insights are of such a character that they not only must be, but also can be, communicated to that larger public. For example, the relation of the emancipation of women to lower child mortality does require a statistics

apparatus and an analytically proper explanation before it can be established as a scientific finding, but once it has been established, then it is something that the general public needs to know, and can easily understand. Communicating these findings is, again, a task for the specialists.

The Dutch government could help create more public attention for Sen's analysis, for example by starting to provide development aid to the poor in the US American cities who in some dimensions are worse off than the people in Kerala. It will be interesting to see how the US Congress reacts to that, and how the media will report on that.

Galbraith: "Created Unequal"

James Galbraith's "Created Unequal" (1998) is advised reading. Galbraith provides a quite accurate and chilling history of how prosperity gave way to stagflation as a result of misguided policy - and he shows how economists provided the misdirections and the apologies. Galbraith is clear of thought and masterly in language, 'another Paul Krugman'. And actually, Galbraith presents us with an original contribution to political economy, while Krugman is more of a chronicler.

A useful qualifier to this: Galbraith also has *many* thoughts and ideas, and this makes the book on occasion a tough read. He admits: "This book began as an inquiry into the origins of the inequality crisis. It has become in part a tract on the reform of monetary policy." (p232). The reader has to be as flexible as the author, otherwise this book will be lost to you. [126]

A good critique of the book has been written by Thomas Palley (1999). [127] Palley's review is some six pages, and since it is a very good review I concentrate here on the relation of Galbraith's analysis to my own.

☪

I am quite amazed by the similarity and closeness of Galbraith's analysis and my own. And where we differ, the analyses rather complement each other. But not fully. Though our two analyses run parallel for many pages, he comes out with a somewhat different conclusion.

Galbraith is focussed on the pre-tax earnings distribution and pays less attention to the after-tax net distribution. In this respect he is quite American, where meddling with the income distribution via taxes is somehow quite unpopular.

Galbraith does not use my analysis. Hence he does not use topics like differential indexation, the tax void, tax induced crowding out on the labour market, etcetera. Often the educated reader can see such thoughts glimmering between the lines, but they are not explicit. Galbraith tends to neglect the impact of taxes on the minimum wage, and to downplay the latter's importance for labour's competitive position. He actually advocates a rise of the US minimum wage, in terms that suggest that he is thinking of the gross minimum !

☪

Galbraith's basic argument is that 'a decent level of equality' is both a goal in itself and an instrument to control the economy. Looking at causes for the rise in inequality in the US, he finds unemployment the main cause, and economic policy to be the main cause for that again. Hence his next focus on US monetary policy. Galbraith presents a regression analysis to back up this line of reasoning. The relation has a good causal explanation, and the R^2 is high, so this is a recommendable result. In my research I am however less motivated by the inequality issue. I consider unemployment itself the main problem. It so happens that the two analyses then merge on the latter. But it also calls to question whether inequality is a useful lever for the debate. The topic of inequality may distract people - and actually repel those who are not interested in that subject per se.

☪

With Krugman, Galbraith rejects the claims for 'technology' and 'globalisation' as the causes for stagflation. He rightly criticises the role of economists in economic policy advice, where they have suggested such causes. Galbraith's argument against such 'skill bias' is remarkably similar to mine:

"In periods of high employment, the weak gain ground on the strong; in periods of unemployment, the strong gain ground on the weak. (...) All are

best reconciled to a theory of differential power, rather than to a theory of differential skill." (p266)

Strangely, the notion is missing from the book that taxes could and should be used directly to create a better bargaining position for the lowly productive.

œ

He also criticises the '*liberal* supply siders' - i.e. those intellectuals who defined the agenda of 'progressive' politics in 1980-2000. Ira Magaziner pops up again. Galbraith recalls that Krugman already criticised these demagogues, but adds the criticism: If education is to be regarded as a tool for competitiveness, then we lose the idea of education for education's own sake. And *mutatis mutandis* for public goods. It is about time that this critique is given.

œ

While Krugman argues "we don't know" - though recently seems to incline to the 'technology' argument - Galbraith provides a clear answer: Policy abandoned the commitment to full employment under a stable price level. Of the 1950-1970 prosperity he says, as I have been arguing for some years too:

"There is no compelling argument that this achievement was anomalous or irreproducible. I believe, on the contrary, that it resulted from a sustained period of sensible policy, later abandoned." (p267)

The major error that economists made was - in Galbraith's eyes - the adoption of the NAIRU framework. This requires a longer discussion, some paragraphs below.

œ

Galbraith's argument has to do with the 'political' aspect of political economy. Around 1980 Carter and Volcker considered inflation far too high, and the decision was made to let the Fed go 'all out' for inflation control. [128] Galbraith shows that this was a break with the past. In the past more tools were used and many government branches co-operated with the Fed. The 1980 decision changed the economic policy making structure and culture, and it became socially acceptable to have high unemployment as a way to tackle inflation.

I think that Galbraith's argument is correct in this. And he is quite correct in arguing (e.g. page 233) that this structure should be changed again to the workings of old, if we want full employment under a stable price level again.

I am afraid, though, that this part of Galbraith's argument will hardly convince the fellow economists. Economists already know about the 1980 switch, and Mankiw (1998) dilligently explains the 'sacrifice ratio'. The experience does not cause economists to think that 'full employment and stable inflation' really can be combined. Economists regard the 1950-1970 period as rather a freak accident, dependent upon some 'after WW II culture' (or other 'amateur sociology').

Galbraith relies on the 'equality as goal and tool' paradigm. Restating on p240-246 what he sees as the old recipe and the lessons from fighting inflation:

"Thus, we need to develop an equalization strategy that is simultaneously a comprehensive anti-inflation program: low interest rates, high employment, a higher minimum wage supported by a stronger union movement, a maximum-minimum pay ratio, and a national prospective inflation adjustment. Neither taxes nor transfers play the critical role here, as the idea is to bring about an equalization of economic incomes before taxes and transfers, not afterwards."

The problem that I have with this statement is that economists will tend not to be convinced by it. The 1980 problems that led to the abandonment of the 'old ways' were very real - and the 'old ways' really did not seem to work at the time.

Also, referring to the 1950-1970 period and suggesting that things solved themselves, as Galbraith is in danger of suggesting ('major inflations are caused by wars' p233), does not sound convincing either. There was some real policy making then - that somehow lost its power around 1980.

Where Galbraith suggests a more modest role for the Central Bank, I also think that economies cannot afford losing the Central Bank as a 'fighter of last resort' - who has to raise the rate of interest if all other methods fail. So some of Galbraith's specifics would have to go, though

the general line of reasoning is laudable.

CG

Galbraith's analysis of the regime switch is correct, but he does not provide the true cause. My point therefor remains: If politicians and their economists don't understand my DRGTPE analysis, and the mechanisms of differential indexation and the tax void and the consequences thereof, then these policy makers might well be right to prefer fighting inflation even at the cost of unemployment. [129]

In my view, for sure, the fellow economists who would dismiss Galbraith's argument would be too fast too. Galbraith's argument actually is balanced and to the point. Yes, a return to the 'old ways' of sharing the responsibility on fighting inflation and unemployment is useful. But Galbraith is too optimistic about the fire power of his guns. His scheme requires more for it to work. Indeed, I think that it are the tools that are provided by my own analysis that would warrant that such a system can work - as it worked in 1950-1970.

CG

Galbraith usefully criticises monetary policy for its impact on the distribution of income. The mechanism is peculiar strong in the US where the rich pay relatively few taxes. If the Fed raises interests rates - and thus, in the current economic system, unemployment too - then it also 'taxes' the middle class with both an 'interest tax' paid to the rich and a 'social security insurance tax' paid to the poor. In 1998, Alan Greenspan, Fed chairman, argued about the distribution of income: "Yes, I am very concerned, but the Fed can't do anything about it." Galbraith shows this to be wrong, and argues that the pre-1980 Fed was involved in doing something about it, and that a restructured Fed can be involved again.

Galbraith's analysis is fitting for a book on inequality - but I think that a middle class person would not need the inequality argument to be opposed to such taxes. Alan Greenspan now is an American Hero - and I think that he deserves much of that credit - but Galbraith provides a narrative that would cause many Americans to reconsider their views.

Galbraith correctly calls to memory that the Fed is not really an impartial government institution, but a body from within the banking system. There are some private interests here, which would be sufficient reason for reform anyhow. In an appendix I give the 'parallel argument' of the Economic Supreme Court with respect to the Central Bank. Galbraith's text set me thinking on this.

Galbraith proposes that the US Fed becomes more accountable to the US Congress - as it is 'a creature of Congress'. I tend to opt for independence like now exists for the European Central Bank. There must be some co-ordination in economic policy making, and co-ordination becomes somewhat difficult if too many institutions and interests are involved.

CG

As a European, it strikes me that Galbraith concentrates so much on pre-tax equality, while I would be satisfied with after-tax equality. I don't believe the stories that many of the fellow economists tell about 'technology' and 'globalisation', but my approach tends to be to let them argue and research, and concentrate on the after-tax equality. This however is not Galbraith. He attacks the conventional wisdom on the pay structure.

He correctly reminds us that pay is not so much an outcome of marginal productivity in a free market, but as much a result of social rules - education, laws, unions, living standards, and such. Where laws and customs affect the economy, then we know from Coase's Theorem that perhaps the final utilisation of resources is not affected, but at least the distribution of welfare is so. Galbraith here is in line with Keynes's attention for relative wages, and my reference to the 'pecking order'.

However, when Galbraith argues that 'more equality also helps to control inflation', then his argumentation is less convincing. For example:

"We will discover that efficiency improves when a larger number of people feel they have a fair shot at being middle class, and when 'middle class values' come again to define our broader culture." (p268).

He here refers to Northern Europe and Japan. I tend to think that there is value in this argumentation, but I doubt that US free market

economists will agree. They will point out that, alas, Europe has an official rate of unemployment of 10%, while the unofficial rate is higher. So, Galbraith here likely is right, but loses the argument because his munition isn't strong enough yet.

At one place he shows him aware that Germany has such a high unemployment rate, but then he suggests that this is caused by an error in policy making (p235). So in one place 'more equality' is advanced as the solution, and at another place it is not enough. I am a sympathetic reader, and can see through the argumentation. But the argument now is vulnerable to readers with less sympathy. Also, Galbraith's critique on European policy differs from mine.

The reason why I find value in Galbraith's argumentation should be clear. Proper tax measures can keep the lowly productive in the labour market, and thus increase competition: making it more difficult for the higher productive to demand pay rises. Thus, there is a valid argument that should convince the US free market economists - and Galbraith's and my arguments nicely complement each other. But I don't use the inequality argument: I use market positions.

☪

In fact, Galbraith *does* use - in one place - the same argument on market positions ! Namely:

"(...) a change in the relative market power of skilled and less skilled workers can occur for reasons not connected in any direct way to political decisions. (...) firms (...) allocate the squeeze in their cash flow occasioned by the rise in price of an important input, in such a way that a disproportionate share of the burden falls on less skilled, less powerful, more readily expendable workers. (...) When changes such as these are run through an analysis that has been constructed from the beginning to be blind to the presence of monopoly power, these kinds of changes would, *and do*, [sic] show up in the data as "skill-biased technological change." Skill bias is thus a phrase that can account, with perfect plausibility but equally perfect meaninglessness, for many different phenomena (...)" (p46)

So the wonder is why Galbraith does not stick to this - sufficient - argument, and later drops it and continues on 'middle class values'.

Note too that elsewhere he explains - quite correctly - that 'skill' is an abused term, since someone can be very skilled (e.g. in making typewriters or other obsolete objects) and still be displaced. What counts is the 'economic empty box' of 'productiveness' - for which an education is only an indicator.

Similarly, it was a pleasant surprise to me that Galbraith (p48) also found the 'sheltered - exposed sector' argument. He does not refer to the impact of taxes (of course) but uses an example of a change in the terms of trade.

Galbraith is of the opinion that you can only see these mechanisms if you drop the assumptions of a fully competitive labour market, and allow for monopolistic power. I am not entirely sure of this. Heterogeneous labour might be congruent to monopolistic competition - but, anyhow, I'd rather take heterogeneity as the starting point, and then proceed with the model, and stay away from the - perhaps ideological - debate on market type. This actually might provide a test for our two theories: it the tax approach would not work, then monopolistic competition might be a force too strong - and the next candidate for the 'main cause'.

☪

I was very much surprised about Galbraith's rejection of the NAIRU concept. On second thought, I think that he has some argument. But it is convoluted, and needs to be straightened out.

Note first of all that I have been using the NAIRU myself consistently, and have been arguing since at least 1989 that it shifts. The use of the concept is quite natural for an econometric model that is used for prediction and policy analysis. I also have been quite critical about tax policy, and have been arguing that the NAIRU may be as low as 2% if policies are correct.

Galbraith does not have that background. Instead, he has a field day in making fun of our fellow economists who - indeed - make fool of themselves. Galbraith nicely remarks: "The NAIRU, like the wage rate, is downward sticky." (p180) Perhaps in reality, but certainly in the estimates that the colleagues have been providing in these last years. Economists lag behind the observations. Robert J. Gordon, who I greatly respect, appears to provide a NAIRU estimate with a confidence interval that seems to make it rather useless for policy. Galbraith rightly

comments that the NAIRU in this manner becomes a ritual blessing for the powerful and the status quo - and is far away from real science. Galbraith gets upset, and quite justified so, since so many innocent people are victims of this intellectual incapacity.

Nevertheless, Galbraith himself mentions an unemployment target of "4 percent or lower" (p171). This causes the question with me whether this is not a NAIRU again, and why it cannot be 2%. In his suggestions for anti-inflation measures, Galbraith also advocates wage restraint, and I cannot but think that the threat of unemployment has a role here.

Galbraith recalls the Friedman quote where the 'natural rate' of unemployment is 'ground out' from the 'Walrasian system'. Galbraith makes fun of this, essentially arguing that 'Walras' was before 'Keynes':

"From a proper Keynesian perspective, the correct response to Friedman's second formulation of the natural rate hypothesis would have simply been, "Sorry, but at the aggregative level the 'labour market' is a misconception; it does not exit."" (p177)

Part of this is going too fast. First of all, we should ditch the word 'natural'. Secondly, if we drop 'Walras' from the Friedman quote and substitute 'the proper model', then we have a proper argumentation. (And we should remember that Walras was a very subtle economist, with more attention for dynamics than perhaps commonly thought.) Thirdly, I don't see why we cannot model the labour market as a 'market' with aggregate impact and spillover - even though I value the ILO dictum "Labour is not a commodity". The 'market' model is useful economics, and the models can be used for policy advice.

So I think that Galbraith might well adopt the NAIRU and use it to his advantage. It is a useful modeling tool. If you put the hammer in the toolbox, instead of on the shaky shelf above your head, it won't hit you on the head so often. Note also that Graafland (1990a) and Gelauff (1992) following Hersoug (1984) have provided more theoretical foundations to the concept, so that the complaint 'an empirical regularity in search of a theory' no longer seems valid.

☪

Whereas I use a whole earnings distribution, Galbraith uses a Theil measure (and calls this a measure for inequality) - and, again quite parallel, we both link these to fiscal and monetary policy.

It may well be that an inequality measure is more efficient to use than a whole distribution. Such measures have been around for a long time, but it seems to me that Galbraith's book is the first time that it is both developed in the present detail and linked up with policy.

Interestingly, Galbraith uses his measure to find that US unemployment should be below 5.5 % in order to keep equality constant or improving. Referring to the 'natural rate', he calls this the 'ethical rate'. I wish he hadn't done that, and had dumped the word 'natural' too. But as such his analysis nicely sharpens our insights in the dilemma's of policy making.

☪

Galbraith provides some technical evidence on the developments in the various industries. This research is interesting in itself too, but while the book progresses, it appears, a bit to the dismay of the reader, that the industrial analysis is primarily given to show that it is less relevant.

Galbraith has found a 'productivity measure' ('P-measure') - defined as value added per production worker hour - that enables him to find three clusters in the US economy: a 'knowledge' K-cluster, a 'consumption' C-cluster and a 'service' S-cluster. The graphs show that these clusters can be found in the data indeed. The P-measure might be less convincing, and might appear ad hoc. However, when it turns out that these clusters can ('basically') be represented too by the share of the wage bill of non-production workers - more and higher paid R&D and marketing workers - then the clustering starts making more sense, and good sense actually.

The link between this part of the book and the rest is rather weak. The idea seems to be that this research underlines the monopolistic tendencies in the US economy. For such a conclusion, however, more work needs to be done. Another line of thought is that this novel understanding of the US industrial development would help us to better understand the role of technology - and its impact on wages and inequality. That may be true too - but I was already convinced of the less relevant role of technology anyhow.

In my view this part of the analysis will surely help to better model the

economy, but it is less relevant for the analysis of inequality proper.

CG

I have been critical of aspects, but in general Galbraith has written a great and very useful book. It is seductively well written, and the subtle points, that are clearly recognised by the author, might easily be overlooked by the readers. My suggestion for a next edition is to split the book in the two books that it actually consists of. This would also give more room to drive the subtleties home.

I may emphasise again that I see a quite parallel line of thinking with my own analysis. I hope that others will see this too, and that they will see that there indeed is something to the arguments.

Cox & Alm: "Myths of rich and poor"

Cox and Alm (1999) wrote a book that one shouldn't buy. Though the book contains almost 50 pages of footnotes, it is not a scientific but an ideological and highly contorted book. Many of the arguments are at the level of 'An apple a day keeps the doctor away' - superficially convincing but nonsense at a quick closer look. As such it gives a good idea of what science is up against - and it is not a pretty sight.

In their preface the authors refer to a list of books that spell America's doom, and they rightly comment that "spreading the bad news has become a cottage industry" (p ix). My problem with their list of books is that it hardly contains any serious economic study. They don't refer to Krugman (1994a, b), while stagflation is a real economic issue. Of course, if you are a victim of such 'doom books' then you might benefit from Cox & Alm's exposition, but then you shouldn't forget about the serious literature, and the authors should warn about that.

One of the reasons why the book is unbalanced is that it seems to serve two goals. On one hand the argument seems to be that America is doing well 'on average' (and even for the majority of the people) and on the other hand the argument seems to be that the poor are not as poor as claimed. This creates the contortion that, when it is shown that the average American home now contains many electronic gadgets, there apparently is also the suggestion that this would be true for the poor - while this certainly cannot be the case. Conversely, where it is argued that many of the legally poor actually are retired people with \$300,000 valued homes, then this indeed is useful to note (and points to a possible error in America's laws) but it doesn't clarify anything about the working poor.

The authors intend to shake up America from a sense of doom, and the book contains a lot of hyperbole of the kind that 'things really are OK'. The authors of course are right that there has been hyperbole about American failure. Their suggestion that this sense of doom originates from the midlife crisis of the baby boom generation, may well be true too. Cox and Alm likely are right as well that emotions with such deep psychological roots require tough counter-measures. But their argument remains unbalanced. If the penis is the problem, please stay away from economics ! Not surprisingly, they often misrepresent the real issues in the economics debate.

A positive point about the book is that it provides a number of facts on the American situation that may not be available in this conjunction elsewhere. Such facts for example concern some basic results of the University of Michigan Panel Survey on Income Dynamics, the plots of the diverging of data series on average hourly wages and total wage compensation (that includes fringe benefits such as health care), and an overview of the findings of various authors on the overestimate of the Consumer Price Index.

It is an entirely different subject how Cox and Alm use these data. About the image of doom they first suggest that 'the argument rests' (p4, they don't say who gives this argument) on the hourly wage index. Then Cox and Alm come to the rescue, and show that total compensation has actually be on the rise. Gentlemen, please, this is no way to behave in a civilised discussion: (a) say who gave this argument, (b) serious economists always consider total compensation, so - especially when you write a book that mentions trivialities such as that computers get cheaper every year - also explain why your hour wage index would not include fringe benefits. (In other words, the note on p215 on 'wage data' does not explain much.) (c) a discussion on poverty is not about averages, (d) and it is entirely misleading to suggest that *per capita income* is a good indicator, for either average or the poor, since this includes the profits and interest of the capital owners.

Similarly, the Income Dynamics data show that people from the lowest 5th quintile can migrate to the higher quintiles. OK, many students first are poor and later earn a good living. The point of the poverty debate however is that many of the poor are not students. Mutatis mutandis for others who manage to escape. And even for students one might question why they should live in poor conditions. Cox and Alm again misrepresent the issue.

Cox and Alm spend pages on illustrating the various technological improvements since the 1950's or even the 1970's. The argument e.g. that the PC has come about since the 1970's, and has gone down in price enormously, is of course of little value to the poor person who cannot afford it anyway. The argument that 'we benefit from cheaper products' is rather contorted. Cox and Alm have a point that incorporating technological improvements is a difficult issue in statistics. Still, it is not a new point, and giving a list of gadgets is not a sufficient method to settle the price index problem either.

The authors refer to p182 to Maslow's theory of psychological stages. The suggestion is a bit that the poor should be happy that they at least have their physiological necessities, and that self-actualisation is a luxury limited for the rich. One would hope that Maslow's theory will be applied more critically. Even a poor person or even 'primitive' societies can have degrees of self-actualisation. These aspects are so much part of the definition of being 'human' that they do not represent a sequential order, but are relevant simultaneously, with different degrees and formats depending upon economic and social means and conventions.

Another way to look at this book is to see that it highlights many predicaments in the debate on poverty, so that it shows that the issue of poverty is not as simple as many may think - including, apparently, the authors themselves.

Cox and Alm summarised their argument in the article "Why Some Americans Want More Poverty" in the Wall Street Journal, European edition, November 10 1999. To show how convoluted some arguments are, I can usefully quote that article, and then comment on it.

"America could soon get a lot poorer.

The U.S. Census Bureau is experimenting with a new formula that would raise the poverty threshold for a family of four to \$19,500 from \$16,660. Through a simple change of definition, one that has nothing to do with economic realities, 12 million Americans might become "poor" overnight.

It's true that existing measures of poverty are riddled with flaws. But the problem isn't that they underestimate poverty; it's that they overestimate it. When we're trying to determine well being, the proper yardstick is consumption, not income. They aren't the same thing — especially among the poor. The poverty rate tells us how many Americans earn low incomes, not what they're able to buy.

Households in the bottom fifth of the income distribution consume well beyond their earnings. In 1997 an average low income household made \$7,086 year before taxes. Consumption — what the poor spent, not what they earned — totaled \$14,670.

How can poor families consume more than they earn? Many supplement their income through welfare, Food Stamps, unemployment benefits, Medicare, Medicaid, school lunches, rent subsidies and other programs, all of which the statistics leave uncounted. And the poverty statistics ignore wealth, which can be more important than current income. Workers temporarily laid off don't get paychecks but they often have savings to fall back on. Although many retirees earn low incomes, their houses, cars and furnishings are paid for, and they've got nest eggs. In 1993, 302,000 families with incomes of less than \$20,000 lived in homes worth more than \$300,000.

When you're really poor, everything you see is something you can't have. But over the years, the poor have gained access to more goods. Government statistics show that poor households own many of the consumer goods usually associated with middle class life in the United States.

The percentage of poor households with washing machines rose to 72% in 1996 from 58% in 1984. Ownership of dryers went to 50% from 36%. Two-thirds of poor families had microwave ovens in 1996, up from one in eight a decade ago. Ninety-seven percent of poor households have color televisions, and three-fourths have videocassette recorders. Almost three-quarters of poor families own at least one car.

By the standard of day-to-day living — the standard that really matters — the poor have gotten much richer. Indeed, poor households in the 1990s are in many ways better off than average families in the early 1970s. Two-thirds of poor households had air-conditioners in 1997, compared with less than a third of all households in 1971. And it wasn't a welfare program that made it possible; it was the free market which has introduced innovative new products and brought the prices down.

Spending patterns help explain how the poor can afford more of the trappings of middle-class life yet still not escape the poverty statistics. Among American households below the poverty line, outlays for food, clothing and shelter were 37% of consumption in 1995, compared with 52% two decades earlier, 57% in 1950 and 75% in 1920. Thus poor households have considerably more discretionary income than they once did.

One reason is that the U.S. government has already been raising the poverty threshold too quickly. For more than three decades the government has been adjusting the poverty line every year for inflation. The Boskin Commission concluded in 1996 that the consumer price index overstates the actual rise in the cost of living by a percentage point a year. What's more, the overall CPI has risen 40% faster than the cost of groceries since 1965.

The crux of the debate over the proposed new statistics is the purpose of measuring poverty. As originally conceived, the poverty statistics were meant to be diagnostic. They emerged in the mid-1960s as a benchmark for President Johnson's "war on poverty." What Americans wanted to know then—what they should still want to know today—is whether they're reducing the number of families struggling to obtain the basic necessities of life.

The answer is yes. A recent Heritage Foundation study examines the incidence of the bedrock problems of poverty—malnutrition, crowded housing and lack of access to medical care. It concludes that 8.7 million Americans, or just 3.7% of the population, make up the nation's "hardship population"—the truly poor.

In 1993, University of Texas economist Daniel Slesnick recalculated the poverty rate based on spending rather than income. To remove the vagaries of inflation, he established the poverty threshold at three times the cost of a nutritionally adequate diet for all members of a household. Mr. Slesnick's results show that the proportion of poor in the U.S., measured by consumption, has fallen steadily, from 31% in 1949 to 13% in 1965 to 2% at the end of the 1980s.

It's not hard to discern the political agenda of those who want to conjure up another 12 million poor people. Having more poor families enlarges the constituency for programs that dole out money to the poor. But if it's simply a matter of deciding which families are eligible for government programs, then the issue really comes down to how much American's are willing to sacrifice to the insatiable god of equality."

My (closing) comments:

- (1) Poverty is always relative, and its definition is always a search for what the *better-off* regard as acceptable rather than a search for objective truth. Opponents of a reduced welfare state, like Cox and Alm, should rather accept that relative standard, rather than confuse the debate with some absolute arguments. For example, a Dutch poverty debate in the early 1900's was about whether a table would be part of household necessities or not. Defining poverty as three times the grocery bill would surely answer that question. But it is more likely that society's standard would start including air-conditioners too (by some regarded as the most important invention this century).
- (2) One of my main arguments is that society even tends to update poverty with the general level of welfare. That the US has been using only the CPI would counter that argument. But that the CPI has been overstated, that all kinds of provisions like Medicare have been added for purchasing power, and that one is experimenting with a serious update, is supportive again. Similarly, Cox and Alm p201 even state "What were once luxuries are now viewed as necessities". It would be better to make welfare indexation the official line, and stick to it.
- (3) The political argument given by Cox and Alm is doubtful. The few votes of the new beneficiaries may well lose out against a huge majority that could be against the proposals, including the current beneficiaries. Why start the whole discussion about democracy again ?
- (4) Poverty definitions, though relative, nevertheless should be as sound as possible. If wealth is not properly accounted for, as Cox and Alm point out, then the debate gets noisy, and popular support for the poor indeed suffers. (Even though the 302,000 families with expensive homes are only a fraction of the 13 million real poor.) Similarly, implementation of anti-poverty policies will often be very murky. ('Did you really try to get a job - and shouldn't we not take you from the programme ?') There is no alternative but to accept this murkiness, and try to instill operations managers with the spirit that they should try for a good performance anyhow.
- (5) To clarify the argument, to get rid of some of the murkiness, I myself take a stylized approach. Then we don't bother with the question whether air-conditioners are part of household necessities. We assume some historic subsistence and exemption level, and then work through the arguments of indexation etc. This thus eliminates much of the need of statistical measurement.

At one point, Cox and Alm oppose socialism and capitalism: "Socialism, a failed and receding system, sought to impose artificial equality. Capitalism, a successful and expanding system, doesn't fight a fundamental fact of human nature - we vary greatly in capabilities, motivation, interests, and preferences." (p87). The argument is at

kindergarten level again. The American success story derives as much from FDR's initiatives as from 'capitalism'. Western European welfare states have come about by active participation of Christian and Social Democrats. The latter often called themselves 'socialist', but certainly didn't close their eyes to human differences. Indeed, there is quite a difference with Cox and Alm.

44. Relating to the OECD and some of its authors

The OECD in general

It has been well-recognised that OECD economies have a problem with jobs with a low level of productivity and thus a low level of market-earned income. The OECD has done great research here. A standard reference here is to the OECD (1994) "Jobs Study", that also was followed up with studies such as OECD (1995), Marsden (1995), Tyrväinen (1995), OECD (1998), the OECD Economic Studies 31 (2000/II) issue, with contributions of Pearson and Scarpetta (2000), Hotz and Scholz (2000), Dilnot and McCrae (2000), Fitoussi (2000), and Phelps (2000). But, while all this is recognised, the OECD shows no attention for this present analysis, even though it has been available on the internet since 1995.

Two main comments can be made with respect to the OECD (2000) Outlook, chapter 2, "Making the most of the minimum: statutory minimum wages, employment and poverty":

- (1) "High marginal effective tax rates associated with the phase-out range of the benefit give rise to disincentives to increase earned income beyond a certain limit." (p55). This is the poverty trap - that however does not exist. When there are ample employment opportunities, people on benefit can be fined if they reject reasonable job offers. (Above minimum income, there also is the dynamic marginal rate.)
- (2) "Both theory and empirical evidence are inconclusive about the precise employment effects of minimum wages over some range relative to average wages. However, at high levels, there is general agreement that a statutory minimum wage will reduce employment." (p57) This tries to distinguish but does not distinguish sufficiently between (a) a minimum wage in general, and (b) its position at a high and low value. Much of economic analysis on the minimum wage concerns aspect (a), but that is less relevant. What is relevant is that the tax void allows a reduction of the minimum wage from a high position to a lower position, creating lots of employment.

Three main comments can be made with respect to the OECD (2001) Outlook, chapter 2, "When money is tight: poverty dynamics in OECD countries":

- (1) The issue of 'poverty dynamics' can also be seen as much of a non-issue. First one causes a disease and then one studies how some patients show different patterns of colours than others. A wrong economic policy causes unemployment and poverty, and then some people have more such spells than others. The crucial point is to get rid of unemployment in the first place, not study its dynamics.
- (2) "Despite substantial economic growth in the OECD area during recent decades, a significant portion of the population consists of individuals whose household income does not support living conditions considered adequate in their country of residence. Individuals living under such conditions are typically labelled as being in poverty, even if their physical subsistence needs can be met." (p37) This does not distinguish properly between earned income and its tax component that causes unemployment.
- (3) The document uses the concept of a "poverty trap" while this does not exist.

The EITC, direct payroll tax reduction and wage cost subsidies

Pearson and Scarpetta (2000:22) rightly conclude: "Furthermore, there is growing evidence that there is no single measure which, of itself, will have a major impact on employment. Hence, [minimum wage policies] have to be seen as an element of a comprehensive policy strategy, e.g. the ten broad policy guidelines of the OECD Jobs Strategy. But any policy that has empirical evidence supporting claims that, in certain circumstances, it could promote *both* efficiency *and* equity by fostering employment and decent levels of family income deserves to be considered in countries facing such problems." It should be clear that

the current analysis, e.g. on the tax void, does not constitute a 'single measure'. The analysis can only be understood within the whole discussion.

Modern systems of taxation tend to favour the Tax Credit instrument, notably the "Earned Income Tax Credit" (EITC), as opposed to direct payroll tax reduction and wage cost subsidies, see e.g. Hotz & Scholz (2000) and Dilnot & McCrae (2000).

However, tax exemption should be set at subsistence income (the net minimum wage). Tax credits then could be used for productivity levels below that subsistence levels. Tax credits that are applied above subsistence are not required and have the psychological drawback that the recipient is no longer considered self-reliant but reliant on the state.

The discussion in the literature suffers from obscurity on this issue, as can be shown below. In the following discussion, we will limit our attention to earners, so that we do not have to speak about the 'earned exemption' versus EITC, and just discuss 'exemption' and 'tax credit'.

(1) Hotz & Scholz (2000:37) conclude: "The problems facing workers with low levels of human capital in the US are severe. Our reading of the economic and policy literatures is that the EITC is the most sensible, primary policy to support low-wage labour markets in the US. Our conclusion is tempered by the institutional facts about US labour markets noted in the introduction. Economies with different institutional features may find EITC-like policies to be less effective or administratively infeasible. Though reliance on the EITC is sensible, we view targeted employment subsidies as a complementary policy. We see less wisdom in minimum wage increases, payroll tax reductions for low-income families, and wage rate subsidies as proposed by Phelps, at least in the US."

However, it will be better to choose tax exemption at the subsistence level. If that implies a 'payroll tax reduction' or 'wage rate subsidy' then this is not a drawback.

(2) Hotz & Scholz (2000:26) give this useful bit of information on the US situation: "the EITC, gives nothing to those without earnings. (...) the EITC provides a subsidy to earnings up to a specific income threshold. For example, consider taxpayers with two or more children in 1998. The EITC gives a 40 per cent earnings subsidy up to \$9 930. Taxpayers with earnings between \$9 390 and \$12 260 receive the maximum credit of \$3 756. The credit is reduced by 21.06 per cent of earnings between \$12 260 and \$30 095."

They note: "The US has a fairly low minimum wage of \$5.15 per hour. While in perfectly competitive markets employer-based and supply-side subsidies (like the EITC) will have equivalent effects, with a binding minimum wage, employer-based subsidies may be more effective policy. A binding minimum wage limits the ability of employment and wages to adjust to an increase in labour supply prompted by the supply-side subsidy." (Hotz & Scholz (2000:27)).

However, it is important to reduce the gross minimum wage simultaneously with introduction of the tax credit (or exemption), to the point where subsistence equals the net minimum wage. The minimum wage should only be binding at subsistence, and subsidies (possibly in the form of EITC) are needed for those working below the minimum wage.

(3) Hotz & Scholz (2000:34): "At its core, targeted hiring subsidies have a different objective than the EITC. The EITC is designed to augment the incomes of low-income families. The WOTC and Welfare-to-Work tax credits are designed to stimulate employment of targeted groups."

(a) This obscures the clarity that one should solve unemployment by getting rid of the tax void, and then look at details. (b) Subsidies to the employee or the employer are to a large extent interchangeable though they may be different dynamically. (c) The difference between persons and families should be dealt with in the tax code.

(4) Hotz & Scholz (2000:34): "The EITC has always been closely linked to the payroll tax. A commonly given rationale for the credit prior to recent expansions was that the EITC offsets the regressive (on an annual basis) burden of payroll taxes."

However, a similar confusion existed with the Dutch Government "Tax Plan for the 21st Century", see chapter 29 above.

(5) Hotz & Scholz (2000:34-35): "Proposals that exempt the first \$x of earned income from payroll taxes would be administratively difficult for workers who have more than one job or who change jobs during the year. Underpaid taxes could be reconciled at the end of the year on

individual income tax forms (as is done with overpaid payroll taxes for affluent taxpayers), but some taxpayers would fail to file, creating a new compliance headache. Revenue neutral proposals that would exempt a portion of earnings, and then tax additional earnings at higher rates would exacerbate the redistribution involved with social security. In particular, money's worth calculations show that social security is a bad deal compared with alternative, safe investments for affluent singles and couples. (Calculations of this sort tend to ignore the value one should place on the insurance aspect of social security against disability, unusually long life, and the randomness of endowments.) As social security is perceived by affluent families to be financially unattractive, pressure could mount for drastically altering social security. Given the importance of the programme in alleviating poverty among the elderly, we think that would be an unfortunate turn of events.

However, these are other issues than the proposal to get rid of the tax void, and should not obscure that matter. Note that taxation always requires administration and collection, so that it does not help to call these a 'headache'.

(6) Hotz & Scholz (2000:35): "In some contexts, one might envision payroll tax reductions being paired with reductions in mandated benefits, which could help the flexibility of low-wage labour markets. In the US, however, it seems unlikely that payroll tax reductions would be matched with reductions in social security, the programme the taxes finance. Consequently, there appears to be no compelling reason why payroll tax reductions would be a preferred policy option to further expanding the EITC."

However, this is unwarranted. At issue are net income and benefit that are at subsistence already. Benefits are net anyway (since the government assigns a gross value but immediately cashes the assigned tax). It is strange to suggest that payroll tax reduction can only be justified by reduction of benefits.

(7) Hotz & Scholz (2000:36): "(Advantage of wage cost subsidy ...) relative to the EITC. First, in the presence of a binding minimum wage, employer subsidies may be more effective, both in stimulating employment and increasing employees' after-subsidy wage rates. This is because the wage floor imposed by the minimum wage may keep the employer's pre-EITC wage payments from falling to their market clearing level. With the employer subsidy, the post-subsidy wage is the relevant wage applicable to minimum wage laws. Hence, employer subsidies might be useful to mute harmful labour market effects of the minimum wage."

However, that same effect is attained by a simultaneous increase of exemption and reduction of the gross minimum wage. That move reduces red tape and the pumping around of subsidies and taxes.

(8) Hotz & Scholz (2000:36): "The second attractive feature (...) is that with employer subsidies, there is a tighter link between work and the after-tax, after-transfer return to work than there is with the EITC. With the EITC, almost all workers who receive the EITC get it as a lump sum after filing their tax return. As mentioned earlier, there is anecdotal evidence that workers have a vague understanding that their "refund" is somehow work related, but it is extremely unlikely that a significant number of EITC recipients have a clear understanding of the credit's structure. There would be a much tighter link between policy and paycheck with employer subsidies."

However, that same clarity is attained by a simultaneous increase of exemption and reduction of the gross minimum wage.

45. After 35 years of mass unemployment: An advice to boycott Holland

Summary

Jan Tinbergen helped create the Dutch Central Planning Bureau (CPB) after 1945, and Dutch society has benefitted enormously up to this very day in 2004. The Dutch situation has also been an example to the world. But there is a down side when the CPB adopts a wrong theory and when policy becomes misguided. Economic theory is created by people, the behaviour of people can also be described by Public Choice theory, and good theory need not get properly adopted. Dutch society suffers huge problems, which problems do not exist just by themselves, but they can

also be judged from the angle of the failure of co-ordination. It can be established as a fact that the directorate of the CPB has been censoring economic science for almost 15 years now, so that society is in a suboptimal state. The mechanisms in Dutch society apparently are too weak to solve this issue. The stress in Dutch society even causes the breakdown of the mechanisms that might work otherwise. With 9-11 there is the new terrorism that increases the stress. That stress in Dutch society is highlighted by political landslides and political murder so unexpected of this country. The censored theory originally provided a solution to Stagflation, but it can also help to resolve the social and economic problems following 9-11. The censored theory would be relevant for other nations as well. For theoretical and practical reasons the censorship must be resolved at CPB itself. Given the weak mechanisms in Dutch society to protect the integrity of science in the preparation of policy, it becomes rational to advise an international boycott of Holland. Economic sticks and carrots are strong incentives to motivate people to stop and think. An international boycott of Holland would likely induce the Dutch to restore the integrity at CPB as intended by Tinbergen.

Introduction

This May 1 2004, the European Union enlarges with the new member states of Central Europe. This is a joyous occasion to celebrate and it is also an occasion to look back at the past and ahead to the future to see what lessons can be learned.

One of the important issues to consider is unemployment. Unemployment is a horrible economic disease since it threatens the very existence of the unemployed person and his or her family, and it increases the stress in society as a whole. France and Germany still have unemployment levels of almost 10% of the working force, the new member states wish they were so lucky. It is not obvious that the Enlargement will generate the creative energy to resolve the problem, and some people fear that there will only be additional problems. Hence at the occasion of the Enlargement it is proper to try to determine what can be done.

In 1989-1990, I wrote Colignatus (1990a), "After 20 years of mass unemployment: Why we might wish for a parliamentary inquiry" as an internal note of the Dutch Central Planning Bureau (CPB). The abstract and summary are reproduced in the appendix to this chapter below while the full text can be found at my website. We are now 15 years further and this explains the first part of the title of this paper: "After 35 years of mass unemployment".

What remains to discuss is how we move from a wish for a parliamentary enquiry to an advice to boycott Holland. The point is that the 1990 paper contains the solution for unemployment but met with censorship by the CPB directorate, and Dutch society has not been able to resolve that censorship yet. I have grown convinced that an outside influence will be of use and that in fact only a boycott of Holland can help out. Hence, my advice to the rest of the world is to boycott Holland till the Dutch resolve the censorship of science by the directorate of the Dutch Central Planning Bureau. The remainder of this paper is devoted to development of that argument.

First considerations

It is useful to explain the following about the Dutch Central Planning Bureau. The CPB has a similar role in Holland as the Council of Economic Advisers to the President in the USA in the co-ordination of economic policy making. The CPB is a world renowned institute. When it was founded shortly after World War II, the first director was Jan Tinbergen who later received the Nobel Prize for his pioneering work in econometrics. Other economists at CPB of historical fame are for example Theil, Koyck, Verdoorn, De Wolff (who is less known but for example coined the terms "macro-economics" and "micro-economics"). The CPB director who originally censored my analysis and who fired me with an abuse of science is Gerrit Zalm, now better known in European politics as the Dutch Minister of Finance. The current CPB director is Henk Don, who has a high personal and professional respect nationally and internationally, which I agree with except for the censorship. It must be noted that Henk was vice-director at the time when the original censorship took place, was not directly involved and does not know some details, but nevertheless firmly supports the censorship and abuse of science.

The key points of the censorship are as follows. The paper was blocked

from internal discussion by the CPB directorate and eventually I was fired in 1991. The court observed an abuse of power but nevertheless allowed the dismissal. There is weak legal protection for Dutch public employees, while the court also did not properly distinguish between my position as an economic scientist and the other position of non-scientific public employees. Apart from the treatment of my person, the publication process itself was this: I intended the paper for publication as a CPB Research Memorandum, the series 'under the responsibility of the author'. The possibility of an internal discussion with interested colleagues seemed to me a necessary step before I could finalise the paper. The analysis is sound, but the colleagues can have questions and comments that contribute to enhanced clarity. This possibility however was blocked by the directorate. A committee on good scientific conduct, consisting of professor Köbben (Leiden) and professor Segers (Tilburg), observed that the directorate would have done better in permitting that internal discussion. My position is that I wait till that discussion is permitted indeed, so that I can finalise the analysis and let it be published as intended.

Some more details are in the appendices to this whole book: the autobiographical note and my presentation for the National Press in Washington 1993 with attached job resume of that time. Updates can be found on the web.

Many economists react that I could also publish the (1990a) paper (or a revision) in an international journal. This however is both beside the point, while it also meets with practical problems.

- First, the point is that the CPB directorate censors science. When the problem is at CPB then it must be solved at CPB. Let me note that when I discussed the censorship with Jan Tinbergen, he said that the issue needed resolution "but by a younger generation than me". It actually is rather curious that one would want the journals to solve the issue while maintaining the censorship at CPB, and then, when the issue is resolved, ask CPB to apply it for the Central Economic Plan.

- Secondly, there are various practical problems. The (1990a) paper is already on the web since 1995, and I do not see it used to solve unemployment. So availability is not sufficient, there must also be proper context and channelling. The paper has been written for a CPB Research Memorandum, it assumes a CPB context and it targets an enquiry by Dutch parliament. Before the web existed, I submitted the paper to two journals, one Dutch, one international, but it came back with useless comments. This is only a small sample, and the paper might be redrafted, yet it confirmed my idea that journals are not the way to go. One should also understand that I have little time to write. My job situation is difficult: short term jobs, always a new subject and not at the easiest level. [130] Of course, much of my time is spent on protesting against the censorship.

I have tried various other ways to resolve the issue of censorship of science by the CPB directorate. For example, I published reviews and collections Colignatus (1992b), (1994b) and finally (2000), "Definition & Reality in the General Theory of Political Economy" (DRGTPE), the first edition of this book. The latter is listed in the Journal of Economic Literature JEL 2000-1325, vol. 38, no. 4, December 2000. Also, Hulst et al. (1998) and Colignatus & Hulst (2003) are Dutch books that explain the issues in lay terms for a general public. But I see no effect. [131]

I have also hoped that other economists would find the same results that I have, so that the issues could be resolved in that manner. But no.

A key example is The Economic Journal, Volume 114, no 494, March 2004. There is the presidential address by professor Stephen Nickell of the Bank of England and the London School of Economics, and there is a special session on the UK minimum wage, with five papers by renowned authors. All these authors have my highest respect and their work is crucial for understanding the economic situation. But solution to unemployment isn't there yet, while it is available for discussion.

I fully agree with professor Nickell and I thank him for his observation: "Relative poverty in the UK has risen massively since 1979 mainly because of increasing worklessness, rising earnings dispersion and benefits indexed to prices, not wages. So poverty is now at a very high level."

Professor Nickell suggests "reducing the long tail in the skill distribution", but in my analysis we should also consider the tax void and the dynamic marginal tax rates, so that more low-skilled people can start working (also because of 'learning by doing').

Since all these other ways have had little effect, I can usefully advise to boycott Holland to speed up matters.

The line of reasoning thus is that if you want to resolve mass unemployment then you need the theory that is blocked from internal discussion by the directorate of the Dutch CPB. Since other ways fail, a boycott of Holland can be a good way to resolve the issue.

This is an advice and not an appeal. I am not an activist, but a scientist. It is only sound advice for the citizen who wants mass unemployment resolved. This advice derives from the integrity of economic science. This advice is also stock and barrel of economics itself and can be included in every economic textbook.

If you don't know where to start boycotting: it is not just tulips and Gouda cheese and the Van Gogh museum, but also think of Shell, Ahold, Baan, Unilever, KLM (Air France), ING, ABN AMRO, Numico, Philips, AKZO-Nobel, DSM, etcetera. Instead of Amsterdam, visit Antwerp. Many international companies also have a local branch in Holland or even have an official seat in the Netherlands for tax reasons, and I would advise their inclusion. Be creative: locate the Dutch element, and boycott it. (They are everywhere, so look carefully.) (And I suppose it already had been wise for David Beckham not to get involved with Rebecca Loos.)

Of course, the Dutch need to eat, and I as well. I already have cut back on my Heineken at lunch, but that is tough since the cafeteria doesn't sell alternatives yet. Hence the advice of the boycott is for the rest of the world, and my advice to the Dutch is to start thinking about that parliamentary enquiry. Also, don't boycott publishers or the internet, since these are vital for the flow of information.

The following discusses a number of angles of which the relevance will become clear in the discussion.

The realism of my advice

Some people wonder whether I have gone nuts in advising to boycott Holland, the country where I live myself. Well, the logic above is clear, and it is only an advice, so I presume that the concern about my nutsiness actually is about the realism of my advice. I don't know much about that. Events often start with ideas and it can be useful to air an idea to see whether it develops.

International contacts are a problem. Paul Krugman (2003), "The great unraveling", rightly criticizes 'anti-globalism', see Krugman's chapter "Global Schmobal" and the injustice done to James Tobin and his Tobin tax.

But there are now some who speak about 'other-globalism'. I contacted some people in Amsterdam in that movement about my suggestion of the boycott. Last year, I and journalist Hans Hulst published a booklet, Colignatus & Hulst (2003). (The title translates as "The voter unchained".) These other-globalists hadn't heard of the book yet (so much for globalisation), but were willing to read it. Their response was:

"I judge the most interesting aspect of your book the way how you approach the problem of unemployment and your conflict on that with the CPB. And indeed, the way how the CPB has dealt with your critique and your alternative is unacceptable."

(PM. One should distinguish between 'the CPB' and 'the directorate of the CPB'. The issues have not been discussed with my colleagues since the directorate blocked that discussion.)

It is up to discussion now how to proceed and we will see whether the Amsterdam people are willing to advise the rest of the world to boycott Amsterdam for a while.

Let me emphasize that I abhor the earlier violence of the anti-globalists, originally at Seattle. If anything like this violence or condoning happens, I will have nothing to do with it and I will report these people to the police. Note that there is a strange mixture in the anti-globalists that they sometimes say that they reject violence, but at the same time actually seem to accept it (from others) since it draws the attention of the media. This is muddled thinking, immoral, and uncreative since there are also fun ways to draw the attention of the media.

What I greatly enjoyed was an interview with José Saramago on his new book "Ensaio sobre a lucidez" (Zoon (2004)). Expressing ideas is the way to go, and it is the same way as Bob Dylan spoke of "The world gone sour" and a recent pop song "Where is the love?"

George W. Bush and Iraq and the American economy

For my American friends, let me discuss George W. Bush and Iraq and the American economy.

I was a foreign exchange student in Burbank, California, in the Youth for Understanding exchange programme, 1972-73. This has created strong ties. Last year when I visited my American Mom, and when we visited friends in San Clemente, we passed that military training field there and we felt sympathy for the marines training there. My Mom also had her anxieties for her neighbour who has been sent out for the US Navy; fortunately he has returned safely.

It may be clear that the free world needs a strong defence and that the US has a special responsibility and hence vulnerability here, so that the US must count on the world's understanding for its difficult position. It may also be clear, though for some people less so, that the war in Iraq is a huge mistake and policy lie. I do not have to extend on this since the case has been put forward by others more eloquently. Personally, I still allow for the fact (since who are we to know ?) that US intelligence has spotted some WMD by now but is slow in making this public. This does not change the major conclusions on transparency and due process.

What is relevant for the current discussion is the common factor of the policy lie.

Advised reading then is Paul Krugman (2003), "The great unraveling". It is a pleasure to read many of my own thoughts in his much more eloquent words. It is also good to observe Paul's development. Earlier, he uttered "sheer intellectual outrage" when he noted that his own theory was politically abused. Now he exposes the system behind it. Nobel Prize winning economist Paul Samuelson advises the general public to read this book:

"Paul Krugman's is a lone voice, telling things as they are and debunking Washington policies that are neither compassionate nor conservative. Plutocratic democracy is in the saddle. Rx. Krugman twice a week. Buy. Read. Ponder. Benefit."

I fully support this.

When the censorship at CPB is resolved, it will be clearer how the policy lies can be averted. Hence, boycott Holland. (And Mom, drop your Dutch stock holdings.)

This is not the place to extend on my views on the failing peace process in particular. But it occupies people, so two remarks can help. (1) I can repeat suggestions already made by others that are neglected at our peril. Translate "Allah" as "God", and don't say "moslim terrorists" but simply "criminals". America isn't in a "war on terrorism" but is "trying in joint co-operation with the international community to arrest terrorizing criminals". Stuff like that. Clean language helps to focus on what you really want. (2) It is crucial that the EU is present in the US. Not by propaganda or whatever, but by simply being there as it is. The EU should establish a broadcasting channel in the US to show the diversity of the EU, for example by selections of what is broadcasted in the EU. The current American media appear too unbalanced and the world cannot afford that.

PM. Relevant texts from my website are:

(1) "Understanding 9-11 and its aftermath", November 11 2001, at <http://www.dataweb.nl/~cool/Papers/WarAndPeace/Understanding911.html>

It may be recalled that at CPB in 1989-1990, I was removed from the team that eventually published the long term projection 1990-2015, Central Planning Bureau (1992ab), "Scanning the future". Relevant here is the Global Crisis scenario where it is assumed that some particular events throw the world economy into shambles. My text "Understanding 9-11 and its aftermath" has been written with that in mind.

(2) "Economics and War & Peace" (general entry to other texts), at <http://www.dataweb.nl/~cool/Papers/WarAndPeace/index.html>

More on Paul Krugman

Krugman still is ignorant about my analysis (DRGTPE, first edition):

(a) the need for constitutional reform on the Economic Supreme Court,
(b) reform of the tax system and the return to full employment and growth.

The gap between me and Krugman is getting smaller though:

(a) Krugman abhors the current political role of the CEA. Perhaps he sees the need for constitutional change towards an Economic Supreme Court.

(b) Krugman has a life-long aversion of taxation theory. But this is where the solution for unemployment can be found (otherwise he might have seen it already). Krugman advances the conclusion that income inequality furthered extreme right-wing conservatism. This provides

fertile ground for my analysis on the tax void and the dynamic marginal tax rates.

I think that it is advisable that Krugman reads my work. Of course he is entirely free not to do so. We can even understand that since he hates tax theory so much. He is likelier to do so however when Holland is boycotted and when that circus draws his attention. Hence, boycott Holland. If Paul starts reading my work, he best starts with DRGTPE.

The Dutch tragedy of the murder of Pim Fortuyn in 2002

In 2002, now two years ago, Holland saw the political rise and murder of prof. dr. W.S.P. (Pim) Fortuyn. He had been a professor of Erasmus university and had been a long time critic of developments in Dutch society. He had been lecturing around the country, his lectures enjoyed some popularity, and he was well aware of the worries among the general public that were however neglected in official policy making by prime ministers Ruud Lubbers and Wim Kok. The events of 9-11 showed Fortuyn partly right and this caused the mood swing that so surprised both foreign observers and the Dutch policy making elite itself. Holland, that always was so calm and tolerant, suddenly became the scene of turmoil, alleged racism, political murder, and a landslide change of the political landscape. After the murder of Fortuyn his party got 17% of the vote, which is not much in international comparison, but it came from nil and it had a huge impact on the median voter position and Dutch coalition politics. [132]

Fortuyn has been systematically misrepresented, both in Holland and abroad. The best proper description of him is that he was a libertine - different from both a liberal and a libertarian. He valued personal liberty much more than a liberal but still saw the need for a social framework where a libertarian rejects it. It comes to mind that Fortuyn followed Voltaire's views here.

It is useful to clarify the distinctions. The best example still seems to be Fortuyn's own homosexuality in relation to the new immigration into Holland. In Fortuyn's view people are free to denounce homosexuality as worse than being a pig. Some people indeed have this opinion, both some native Dutch and some of the new immigrants. Fortuyn valued the freedom of expression so that there could be scope to start a dialogue. If thoughts would be repressed then this would cause them to go underground and they might pop up in unpleasant ways. By consequence Fortuyn himself should be free to comment on outdated cultural conventions and the unnecessary unkindness to pigs if not people themselves.

What happened in this debate is that many commentators, particularly in Holland that still is sensitive to the discrimination of the Jews and the Shoa in World War II, feared that Fortuyn discriminated against moslms. This focus did injustice to Fortuyn's position for he did not target moslms and he intended no discrimination but defended their freedom of speech. By misrepresenting Fortuyn in this way, attention also shifted away from his other proposals on government, the economy and for example also the public health system. All this caused a shallowness of the debate, a shallowness that fed on itself. Fortuyn protested that he was being demonised and appealed to prime minister Wim Kok to protect him.

It is crucial to observe that Dutch key politicians joined the demonisation, including Wim Kok whom Fortuyn had turned to for help. Fortuyn was no racist and no fascist, the Dutch key politicians knew this, but they still issued statements that implied that he would be racist and fascist. It is important to realise that Fortuyn's true ideas were known, for example from books that he had written over the course of years, while Dutch key politicians have the support of staff to research material. Their idea might have been that it was an election campaign and that election campaigns are 'dirty'. My idea however is that these Dutch key politicians crossed a line and exposed themselves as liars. Even when Fortuyn protested that he was being demonised, they did not stop, and in that manner they contributed to the climate in which the gunman saw himself called into action. (Noteworthy, that gunman says that he did it to protect society, but he is an environmental activist who considers pigs to be members of society.)

Let us consider the evidence. The demonisation of Fortuyn consisted of:

- (a) bad listening and wrong citation
- (b) the grapevine
- (c) suggestion and explicit false accusation

(d) in words and behaviour

(e) with mass demonstrations and pies in his face (mixed with vomit and excrements).

Let me quote the key politicians. The Dutch sources are AD Tijdsdocument (2002) and Volkskrant (2002) and I give my own translation.

Paul Rosenmöller (leader of the green left, GL) calls him “not just right-wing, but extreme right-wing” (which implies fascism). [133]

Thom de Graaf (leader of the liberal democrats, D66) refers to Anne Frank’s “Achterhuis”.

Ad Melkert (leader of the social democrats PvdA): “He crosses a line that you are not allowed to cross. Holland, wake up !” Later he adds: “You wake up, and you see Le Pen. You wake up, and you see Fortuyn.” [134]

Gerrit Zalm (leader for the conservative liberals VVD) : “a dangerous man”. [135]

VVD chairman Eenhoorn: “the Mussolini type of leader”. [136]

Marcel van Dam (influential columnist, both on national TV and in a widely read newspaper, also PvdA): “lower than a low-life”. [137]

Wim Kok (prime minister at that time, PvdA): “sowing of hate and discord”. [138]

Evaluating the situation and these statements, the Dutch political scientist Cas Mudde concludes, see AD Tijdsdocument (2002:82):

“(…) can be documented that Fortuyn was demonised by politicians like Melkert, Rosenmöller and Zalm.” [139]

Nobody denies that Kok et al. were right to be worried about developments in Dutch society after 9-11 and the Dutch elections of 2002. Nobody denies their special responsibility in terms of leadership. In their own view, they might well have been right in opposing Fortuyn. (I didn’t vote for him or his party either.) But they should not have corrupted the information. [140]

After the 2002 elections, Kok, Melkert and Rosenmöller have left politics. Kok is now at the bank ING and Zalm helped appoint Melkert to the position of Dutch representative at the Worldbank. Have Dutch society and Dutch politics recovered from the Fortuyn ordeal by now ?

It must be observed that there were no other politicians who stood up *to defend* Fortuyn where he was obviously being demonised. It is basically this group that now has taken over command. Thus, the current Dutch prime minister Jan Peter Balkenende kept silent. It later turned out that he had a deal with Fortuyn not to attack each other since they both wanted to replace the sitting coalition. But neither did he defend Fortuyn against the slander. The current leader of the social democrats, Wouter Bos, also gave his silent support to the lies by Melkert. He now admits that some mistakes have been made, though he apparently still supports Kok and Melkert and apparently does not mind that they have tried to fool the public, while it has already been discussed in Dutch newspapers that Melkert might be a candidate to become a European Commissioner. The sad observation remains that while key politicians have stepped down, they have been succeeded by the same breed, the ones who kept silent while Fortuyn was demonised. The Dutch situation still is a mess and science still gets censored.

It is not just the politicians. The 17% who voted for Fortuyn’s party did not become a member of that party. They complain that the government did not provide bodyguards but if they had paid contributions, Fortuyn could have hired those himself. The Dutch have a strange relation to their wallet.

The rest of the world is amazed over the events in Holland, that had such a fine reputation of liberty and tolerance and openness of mind and that uncritically followed Bush and Blair on Iraq, talks about dress codes, the banning of books (even of medieval writers), the return of the death penalty, the closing of “coffee shops”. Some political commentators conclude that the current Dutch government is slowly executing Fortuyn’s agenda. It is hard to judge this, since that agenda was also fuzzy and inconsistent at points. While Holland now seems to get the toughest immigration laws in Europe, it is difficult to call this Fortuyn’s agenda, since that was not Fortuyn’s main point. Also, if you would take immigration and integration serious, I would suggest that my analysis on unemployment is very important for that. It may also be noted that some people continue demonising Fortuyn. Anyway, the real thing that the world should be amazed over is not so much the closing of the Dutch mind but how it came about that this mind is closing.

The point is that Holland still needs to focus on the real questions. If you agree, boycott Holland.

(PM. There is one thing about Fortuyn that needs retelling. After his murder, his party commissioned a statue. This statue was transported to its destination in an open truck in upright position, in proud demonstration. The driver however misjudged a tunnel and in full speed the statue was beheaded. There he was, his person and ambition murdered and his memory turned hilarious... But, that this story is hilarious means that we basically respect Fortuyn as a good man. Otherwise it would be ridiculous. That the story is worth retelling, will contribute to his memory.)

On the European Enlargement

It is good to see the attention that the European Enlargement gets in the media these days.

Of special note is Timothy Garton Ash (2004), that May 1 2004 is the beginning of a new century. This article strikes the proper balance between realism and the idea that we should have a big party. A nice touch are his jokes. Question: "Rebbe, is it possible to create socialism in one country?" [141] Answer: "Yes it is, but then you must go live in another country." Question: "Are the Soviets our friends or our brothers?" Answer: "Our brothers - you can choose your friends."

The Books Supplement of NRC Handelsblad of May 1 2004 appropriately also discusses John Gillingham "European integration, 1950-2003", Christopher Booker and Richard North "The Great Deception", and Jacques Delors "Mémoires" (apparently French).

Interesting, and only available for Dutch people now, is Renée Postma (2004), from the reporter of NRC Handelsblad for Central Europe. What strikes me from her account is the robber baron period after the fall of the Berlin Wall and the hurt that still exists. The reader is quickly confronted with suicides from persons who were brought in hopeless conditions. I am very moved by this, for my paper (1990a) that was blocked from discussion by the directorate of CPB was intended precisely to prevent all this.

Dutch readers can benefit from Postma's account. On page 113 she shows that the Dutch prime minister Wim Kok did not know what he was talking about when he promised Poland that Holland would employ 40,000 Polish nurses.

Job flows in the enlarged EU are a hot topic, but there are a lot of confused arguments like this. The best approach is that each economy targets full employment, so that only those people migrate who freely opt for it. Problems in the labour market can be solved in Holland too, so migration is second best and hides the real problems. Poland also needs lots of nurses. Foreign training of course is useful, and so on, but if economic conditions force people to move permanently, then something seems to be wrong with the economy. John Kenneth Galbraith (1979), in his booklet on poverty, has forcefully shown that migration has historically been one of the best ways to fight poverty, but those historical circumstances were different. In the present situation, investments in Central Europe are the key approach and that means that people are needed in Central Europe.

A key passage in Postma's book is:

"In Central Europe there is a romantic vision about the Dutch citizen. He would be the example of a successful relationship between government and individual, a rational being who decides on the base of both self-interest and the common interest and thus finds the social optimum. According to the Hungarian writer Pétér Nádas the Dutch have understood the importance of compromise. Only by co-operation at all levels it is possible to keep a dry polder." (p105).

Postma confronts this view with the events around prof. dr. W.S.P. Fortuyn. I can usefully confront it with the ideas in DRGTPE as well. For foreigners it may be difficult to get a grip on Holland. A key point is this. Holland has 16 million inhabitants and may be regarded as a relatively small country. In a specialised professional field, such as macro-economics, everyone tends to know everyone else. Social control, biases, prejudices, stigma, and so on, can occur. As a Dutchman, I presume that Dutch society is admirable in many respects, but perhaps we are also a bit spoiled (and not only because of our resource of natural gas).

The EU has quite some challenges ahead. It is also obvious that my analysis is not mentioned in the debate on them while it is the best way to meet them. Hence boycott Holland.

Advice to vote NO on the current proposals for a European

Constitution

My advice is to vote NO on the current proposals for a European Constitution.

The reason is that these proposals are scientifically unsound. For example, they lack an Economic Supreme Court, and they do not satisfy the conditions explained in Colignatus (2001) "Voting Theory for Democracy".

Obviously, a vote is a political statement, and not something what science can determine. If people want a sloppy constitution then they are entirely free to do so. Science can only contribute to consistency between what is claimed for that constitution and what will be its true effect. Given the claims, vote NO.

My analysis on social welfare and voting is part of the censorship by the directorate of the CPB. Hence boycott Holland.

A note on my own position

I already expressed the hope that you would not boycott me, my publisher and my internet provider (or those in general).

I have wondered whether I should also beg for such leniency for my family and friends. This would turn into quite a logistical operation. I have turned 50 this year, there is quite a trail. Also, I already told that I contacted some 'other-globalists' in Amsterdam with the question whether they would be willing to ask their foreign friends to boycott Holland: perhaps they should be absolved from harming themselves as well. Perhaps we can make a sticker or label "Don't boycott me because I boycott Holland" and sell this, with the proceeds to the tropical rain forests (that also suffer from the censorship by the directorate of the CPB).

All this is rather complex and one can imagine that people ask why I don't simply emigrate. But I hope that you agree that the censorship by the CPB directorate shouldn't force me to depart from my loved ones.

It is decidedly simplest to boycott all Dutch. My loved ones might suffer, but the rational gamble is that the boards of Shell, Ahold, Baan, Unilever, KLM (Air France), ING, ABN AMRO, Numico, Philips, AKZO-Nobel, DSM, etcetera, and also the mayors of Amsterdam, Rotterdam, The Hague, Utrecht, Leiden, Delft, Maastricht, and even the rather sleepy mayor of Groningen wake up before that, and send out their envoys to Parliament to do something about this rather weird situation.

Yes, I have really tried everything else possible. My efforts have been listed in Colignatus & Hulst (2003), but a selection for an international audience is:

- Dutch government has an Office of Integrity, but this has been installed only recently (suggesting that there were no solutions before?), and they don't take 'old cases' (even though the directorate of the CPB still censors the analysis: I recently asked for some proper decisions, the court established that they should reply, and they replied as a censor does).
- The Academy of Science (KNAW) sees no task to cover the official governmental research institutes that claim a scientific status, such as CPB, SCP, RIVM.
- I've also asked my last employer, the Department of Public Health at Erasmus MC, whether they would support a suggestion to KNAW to investigate the CPB case because of its importance for the integrity of science. Professor Richard Gill of Utrecht University already supported that suggestion. If Erasmus MC thinks that I have some professional standing, as they renewed my contract in October 2003, perhaps they also value my judgement on this issue on the integrity of science. The censorship by the directorate of the CPB also has consequences for Public Health, not only in Holland, but via economic theory in all countries. To my regret, this discussion appeared difficult to resolve. For a longer discussion, see my website on the topic of public health.
- I've written a string of newspaper articles in the beginning of the 1990s, but to no avail. This is about the same period when Fortuyn was put down by Kok and Melkert as well. Nowadays newspapers fundamentally neglect me, seem to regard me as some idiot who should stay in his cage. My recent book with Hans Hulst has had a decent and highly positive review in the magazine for Dutch teachers in economics, and similarly in a newsletter for socially involved workers in the Churches, but got a short negative put down in a social science journal, and has otherwise been neglected.

The censorship of science now takes almost 15 years. This year I turn 50, and that is a good moment to take stock. Institutions are stronger than people, what resources remain? I see no other prospects. So, alas, I must advise you to boycott Holland.

(May 1, 2004)

Appendix: After 20 years of mass unemployment: Why we might wish for a parliamentary inquiry

(Abstract and summary only)

<http://www.dataweb.nl/~cool/Thomas/Nederlands/TPnCPB/Record/1990/12/18/index.html>

Thomas Colignatus * December 18 1990

CPB internal note 90-III-38

Abstract

A synthesis of economic theory is presented, the solution to unemployment is restated, the intellectual need for a parliamentary inquiry is established, and as an example to such inquiry the performance of the *Centraal Planbureau* is evaluated.

Summary

In Holland, mass unemployment persists already for about twenty years, and will continue to do so for many years to come. Economists agree on the obvious solution, the reduction of labour costs. But for some reasons our decision making process doesn't generate that decision. Policy measures that are taken, actually are troublesome, like the creation of a *Centraal Bureau voor de Arbeidsvoorziening* (CBA), or the recent 'temporary and red tape' ten percent subsidy on minimum wages (WLOM). The policymaking situation is analyzed in a more formal manner, to allow for more abstract reasoning. This requires a social welfare function, an income redistribution function, and a production function (for the unemployed cq. subsidized workers). In fact, we might attain the goals of high growth, price stability, full employment and a just income distribution, by means of monetary, fiscal and subsidy instruments. The conclusion however is that the present policy sclerosis derives from insufficient interest in and information about the form and location of those mentioned functions, and lack of interest in optimization itself; and this again may be caused by institutional weak spots. A review of the issue and of the policymaking process could be beneficial and actually logically needed. Among others, this would include a review of the *Centraal Planbureau* (CPB), that has not properly endogenised government behaviour in its models, projections and analyses. It is suggested that such review would be a task for parliament; and the logic for a so-called ***parlementaire enquête*** is compelling. Clarity on the issues is essential too for the European debate and our advice to the Eastern European countries.

*) The author is an econometrician at a government agency that has some involvement with the economic policy making process; the article expresses his own views only. This paper is adapted from a presentation at a parallel session at the conference in honour of prof. W. Albeda "The future of industrial relations in Europe" June 7-8 1990, Maastricht, The Netherlands

46. Final conclusion

Considering all these arguments, I think that it is best that economists advise their parliaments to investigate these matters. The television cameras should not focus on the debate between the parties, for a while, but on the didactic discourse between politicians and scientists.

Epilogue

I like to thank Guido den Broeder for publishing my earlier work (1992b). I want to thank my friends of the Samuel van Houten Genootschap, Eric van Stappershoef and Fred Kromhout, for my earlier publication "Trias Politica & Centraal Planbureau" (1994b). I thank Hans and Auke Hulst for their 1998 "Werkloosheid en armoede, de oplissing

die werkt" ("Unemployment and poverty, the solution that works"), written with my assistance. Hans and I wrote "De ontketende kiezer" ("The voter unchained") in 2003. All these books were good products and provided the encouragement of a work well in progress.

I thank Stephen Wolfram and the people at Wolfram Research Inc. (WRI) for creating *Mathematica*, a system for doing mathematics on the computer. Without this, this book would have looked quite different, or not have been there at all. I thank Leendert van Gastel and André Heck of the - now no longer existing foundation - Computer Algebra Nederland (CAN), and Dick Verkerk of the - very existent - CANdiensten for the opportunity to visit CAN at that time. I thank Asahi Noguchi (1993) and Silvio Levy for originally creating the *Mathematica* package on Applied General Equilibrium analysis, and for giving their permission to rework it and to include it in my own *Economics Pack* (1999), that this book uses.

Specific thanks are also due to Bob Parks of the Economics Working Papers Archive (EconWPA) of the Washington university at St. Louis. Over the course of the years much of this work has been put there, and this has been very useful.

On content, I thank prof. dr. Jules Theeuwes (Leiden University), prof. dr. Hans Weddepohl (Amsterdam University) and prof. dr. Jan Siebrand (Erasmus University Rotterdam) for their comments on some of my earlier papers. A discussion with prof. dr. Henk Folmer (Wageningen University) contributed to more clarity in the argument as well. All responsibility is mine of course.

I like to thank my former colleagues at the Dutch Central Planning Bureau (CPB). Without them I would not be the economist that I am now, and I can do them no greater compliment than by advising that the bureau should be promoted, with some modification, to an Economic Supreme Court. My special thanks go to Martin Vromans and Carel Eijgenraam.

I am also indebted to my close friends and family, both Dutch and American, without whose support this work could not have been created.

☪

I think that I usefully state again that I protest against the abuse that has been inflicted onto me by the directorate of the CPB and that has hindered the due course of science.

Not that I entertain any illusion. Most people and organisations that I contacted have been particularly uninterested. Policy makers do not like the idea that the government itself contributes to stagnation. Voters seem to accept unemployment as a natural phenomenon. Academic economists are mainly interested in their own line of research and the possibility of publishing in some journal. Scientific truth, and the interest in scientific integrity in the policy making process, somewhere gets lost. So, having this experience since 1989, an educated guess would be that it might take many more years before my analysis is accepted and before there is any chance that the abuse can be corrected. The main worry of course is that unemployment and poverty hang in here too.

Appendices

On the definition of economics

The body of the text explains the difference of and relationship between 'economics' and 'political economy'. I propose that we all stick to those definitions. But it remains useful to relate to definitions provided by other authors.

☪

Marshall (1890, 1947, p1 and 43) first equates Political Economy and Economics, and then splits them up again:

"Political Economy or Economics is a study of mankind in the ordinary business of life; it examines that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of wellbeing."

"Economics is thus taken to mean a study of the economic aspects and conditions of man's political, social and private life; but more especially of

his social life. The aims of the study are to gain knowledge for its own sake, and to obtain guidance in the practical conduct of life, and especially of social life. The need for such guidance was never so urgent as now; a later generation may have more abundant leisure than we for researches that throw light on obscure points in abstract speculation, or in the history of past times, but do not afford immediate aid in present difficulties.

But though thus largely directed by practical needs, economics avoids as far as possible the discussion of those exigencies of party organization, and those diplomacies of home and foreign politics of which the statesman is bound to take account in deciding what measures that he can propose will bring him nearest to the end that he desires to secure for his country. It aims indeed at helping him to determine not only what that end should be, but also what are the best methods of a broad policy devoted to that end. But it shuns many political issues, which the practical man cannot ignore: and it is therefore a science, pure and applied, rather than a science and an art. And it is better described by the broad term "Economics" than by the narrower term "Political Economy".

Here, 'economic aspects and conditions' refer to the provision for food and shelter, the working life etcetera. Nowadays we would tend to include more subjects, and still say that 'economics' is involved in it. To us, 'economics' sets in (as a sufficient but not necessary condition) as soon when some preference decision is to be made. Marshall's tools, as for example the scissors of supply and demand, have been applied to this wider area of application too. This indeed may well be the luxury situation that he expected.

By consequence, it is useful to still use the name 'economics' for the wider subject areas, even though allowing for more subjects causes less 'economic content' than Marshall perceived. Economics thus is characterised by the approach, method and tools used. On the other hand, 'political economy' then concentrates on one particular subject: the management of the state. Much of Marshall's "Principles" will, paradoxically, then be relevant for political economy.

CG

Gambs and Komisar's 1968 textbook "Economics and man", chapter 1, gives a nice overview of the various definitions that early economists have provided. A longer quote (of those quotes) usefully enriches our understanding of the definition of 'political economy'.

"What is economics all about? It is often defined as the science of wealth or as the study of how mankind gets its living. Statements like this are certainly useful, but they are also too general. When we try to take the next step, we get into trouble. We meet difficulties in pinning economics down because its practitioners are in disagreement about the scope and nature of their science, and attempts to particularize lead to protests from opposing schools of thought. The only definitions on which agreement is possible are broad ones like those given above, or humorous ones like "Economics is whatever an economist wants to talk about."

The reader may have misgivings about studying a science in which disagreements arise at the very start. His doubts are indeed well founded but should not too quickly turn him away. After all, there are still differences of opinion even in astronomy and physics, chemistry and biology. Psychology remains a free-for-all. No considerable field of knowledge is so completely understood that all of its scholars speak with the same voice. The process of reaching a balanced conclusion often requires a sifting of the testimony of contradictory witnesses. In any event, stress on differences should not obscure the fact that all sciences, including even economics, agree on many things. There is, besides, an enormous store of historical and descriptive matter—economic facts—that is well worth knowing and concerning which there is little dispute. We shall hope that the burden placed on the reader of suspending judgment and viewing the same things in different lights will not be too heavy.

One of the dominant schools of the day looks upon economics as study of what happens when we try to reconcile the scarcity of things with the insatiable wants of human beings. Most things worth having, except the air we breathe are scarce — scarce enough, at least, to command a price and not to be available to all in generous quantity. Among the less dominant and dissenting schools is one that considers the study of the disposal of scarce goods too restrictive. Some members of this class focus their interest on the moral codes, business practices, social institutions, legal framework, and the like under which we get our food, clothing, and shelter. They study an economic system — capitalism, for example — in much the same way that an anthropologist studies the

Klamath Indians or some primitive tribe of a South Sea island. They ask, and try to answer, questions that have little to do with the disposal of scarce goods.

The student may find it helpful to examine the definitions given below. They represent the thought of several periods and schools. In these definitions the older phrase "political economy" is more or less equal to the modern word "economics."

Oeconomy, in general, is the art of providing for all the wants of a family, with prudence and frugality What oeconomy is in a family, political oeconomy is in a state (Sir James Steuart, 1712-1780).

Writers on Political Economy profess to teach, or to investigate, the nature of Wealth, and the laws of production and distribution: including directly or remotely, the operation of all causes by which the condition of mankind, or of any society of human beings, in respect to this universal object of human desire, is made prosperous or the reverse (John Stuart Mill, 1896-73).

Political Economy treats chiefly of the material interests of nations. It inquires how the various wants of the people of a country, especially those of food, clothing, fuel, shelter, of the sexual instinct etc., may be satisfied; how the satisfaction of these wants influences the aggregate national life, and how in turn, they are influenced by the national life (Wilhelm Roscher, 1817-94).

Political Economy or Economics is a study of mankind in the ordinary business of life; it examines that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of well being. Thus it is on the one side a study of wealth; and on the other, and more important side, a part of the study of man (Alfred Marshall, 1842—1924).

Economics is a study of the "community's methods of turning material things to account" (Thorstein Veblen, 1857—1929)

Economics ... is concerned with that aspect of behavior which arises from the scarcity of means to achieve given ends (Lionel Robbins, 1898—).

. . . Economics is ... a social science; that is, it deals with the behavior of men in organized communities. Its special province is the behavior of social groups in providing the means for attaining their various ends (Wesley Mitchell, 1874—1948).

The theory of economics ... is a method rather than a doctrine, an apparatus of the mind, a technique of thinking, which helps its possessor to draw correct conclusions (John Maynard Keynes, 1883—1946).

A few comments on the above may help. The first definition, by Steuart was conceived before much formal and sustained thought by a succession of scholars had been given to what we now name "economics". Steuart was a mercantilist, primarily interested in the wealth of the British crown and its capacity to support a navy, pay soldiers, and build and maintain the King's highways. His concern was not with the nation as a whole — the artisans, farmers, and other men of low degree. In contrast, the next definition, by Mill — a very acceptable definition even today — does consider the society as a whole. It also calls attention to the "laws of ... production and distribution." which are still at the forefront of economic interest. With the exception of the definition given by Lionel Robbins, all of the others reach down — like Mill — into the entire community. Veblen and Mitchell are dissenting economists (...) Yet both echo the phrase of Marshall, a major orthodox economist, about "the attainment . . . of the material requisites of well being." Marshall, Robbins, and Mitchell place emphasis on human behavior. This is a desirable emphasis, lest we forget because of our shorthand way of speaking that human beings are the cause of economic phenomena. For example, economists are much concerned about the rise and fall of prices; but prices do not rise and fall. Human beings mark them up or down. The majority of American standard or orthodox economists would endorse the definition given by Marshall, not only because it is a good one, but also because of his great authority. Yet Robbins' — so completely different—would also meet with great favor. What economists like about this pithy definition is that it goes to the heart of an issue which engrosses many of them: how to reconcile scarcity or the niggardliness of nature with the unlimited desires of man. Economists like to say they will not be needed in heaven. The reason is that in paradise, wants are few and resources boundless. Its inhabitants will never have to decide how much to spend and how much to save, how heavily to tax, how much butter to give up in order to have guns.

The definition given by Keynes, the most widely acclaimed economist of the 20th century, is a rather puzzling one. Economics is here defined partly as a "technique of thinking." What does this mean? Obviously, any organized body of knowledge directs the mind in ways that are foreign to

other organized bodies of knowledge. The chemist thinks about how atoms combine, whether they combine explosively or quietly, what happens when you restructure the atoms of a molecule. In this sense, we get a unique “technique of thinking” in almost any specialized activity, including economics; indeed, even baseball, football, and other sports impose a special technique of thinking, But is his all that Keynes has in mind? Certain well-known techniques of thinking include induction and deduction. Behaviorist psychologists — at least in the early days— reduced thinking to inaudible speech; the philosopher John Dewey described thinking as problem solving. Without clarifying, Keynes seems to claim for economics a unique method of ascertaining truth—one which is either a substitute for or an addition to the more widely known methods suggested above; something you would not find in a book of logic, only in a book of economics. If this is his meaning, we must reject the definition, for the method of scientific investigation and techniques of thought are the same for all kinds of data; and in any case, there is a difference between the concerns and data of economics and the method of studying it — a difference which is not recognized in the Keynesian definition.

The question whether economics is really a science cannot be answered easily. Astronomy, chemistry and physics have spoiled us with their split-second accuracy and such infallibility of prediction that we are inclined to look with disdain at the social sciences. Biology has not scored the successes credited to the physical sciences, but it still outpaces economics by a good deal. If, however, science is thought of as an attitude, a willingness to put aside prejudice, self-interest, and the unverified wisdom of the authority, then economics will fare moderately well.”

This ends the longer quote.

Gambs and Komisar themselves state: “The economist’s job in our society - as it would be in simpler societies - is to study all of our decision-making forces, practices, and traditions, and to decide whether they are promoting the general welfare.” (p14)

My own notes on all of this: (1) Keynes’s quote likely refers to the ‘science’ claim for economics, and has less to do with its subject matter. See the discussion on Hicks in chapter 19. (2) Robbins’s definition, though popular as it is - since it focusses on a clear phenomenon that can be frequently seen - thus is inadequate on the whole. It is an engineering’s definition, a rephrasing of ‘efficiency’. It is useful to highlight some aspects, but no more. It neglects policy stagnation that causes a state of inefficiency to endure. It neglects evolution and power that for example affect the income distribution. Robbins’s definition is like defining a map as ‘a piece of paper that contains street names’, forgetting all the other useful things that map makers provide.

☪

Mankiw (1998:4) defines: “Economics is the study of how society manages its scarce resources.”

This again mixes ‘economics’ (the approach) and ‘political economy’ (a subject). I am not in favor of this, see the introductory discussion. The ‘10 principles’ that Mankiw himself provides in his first chapter give a nice view on the economic approach to problems - quite like Keynes’s definition - but do not tell us much yet about the management of the state.

☪

Piet de Wolff (1911-2000) introduced the distinction ‘macro-economics’ and ‘micro-economics’, in his 1941 article on elasticities, in *The Economic Journal*. His distinction is plain technical, and his ‘macro-economics’ appears to be just another word for ‘aggregate’. I surmise that the economics profession quickly adopted the word ‘macro-economics’ since it sounds more professional and less political than ‘Political Economy’. It sounds as a distinction that can be made within economics, without having to visit the other sciences. The problem with equating macro-economics with Political Economy however is that Political Economy also is interested in distributional aspects - while macro-economics by definition looks at the aggregate only. A problem with publishing a book on micro-economics (and using that word as the title) is that good micro-economics of course also includes the macro-economic feedbacks and constraints. So my suggestion is to use the ‘macro’ and ‘micro’ words as technical terms only (better sounding than ‘aggregate’ and ‘disaggregate’), and not write books with those titles or

create professorial chairs on those 'subjects'.

Biographical note on Montesquieu

Quoting from
<http://www.geocities.com/Athens/Acropolis/6681/montesqb.htm>:

"Montesquieu, Charles Louis de Secondat, Baron de la Brede et de (1689-1755), French writer and jurist, born in the Chteau of la Brède, and educated at the Oratorian school at Juilly and later at Bordeaux. He became counselor of the Bordeaux parliament in 1714 and was its president from 1716 to 1728. Montesquieu first became prominent as a writer with his *Persian Letters* (1721; trans. 1961); in this work, through the device of letters written to and by two aristocratic Persian travelers in Europe, Montesquieu satirized contemporary French politics, social conditions, ecclesiastical matters, and literature. The book won immediate and wide popularity; it was one of the earliest works of the movement known as the Enlightenment, which, by its criticism of French institutions under the Bourbon monarchy, helped bring about the French Revolution. The reputation acquired by Montesquieu through this work and several others of lesser importance led to his election to the French Academy in 1728. His second significant work was *Considérations sur les causes de la grandeur et de la décadence des Romains* (*Thoughts on the Causes of the Greatness and the Downfall of the Romans*, 1734), one of the first important works in the philosophy of history. His masterpiece was *The Spirit of Laws* (1748; trans. 1750), in which he examined the three main types of government (republic, monarchy, and despotism) and states that a relationship does exist between an area's climate, geography, and general circumstances and the form of government that evolves. Montesquieu also held that governmental powers should be separated and balanced to guarantee individual rights and freedom."

Note that his original name was Secondat, and that he inherited the title of Baron from his uncle in 1716. He also was elected to the Royal Society in 1730. See <http://tqd.advanced.org/3376/Monty2.htm>

Sir Isaiah Berlin: "Montesquieu advocated constitutionalism, the preservation of civil liberties, the abolition of slavery, gradualism, moderation, peace, internationalism, social and economic justice with due respect to national and local tradition. He believed in justice and the rule of law; detested all forms of extremism and fanaticism; put his faith in the balance of power and the division of authority as a weapon against despotic rule by individuals or groups or majorities; and approved of social equality, but not the point which it threatened individual liberty; and out of liberty, but not to the point where it threatened to disrupt orderly government." ("Against the Current") (Also taken from the internet.)

The *Spirit of Laws* can actually be read on the internet at <http://www.constitution.org/>

I've read the introductory parts, and find them still quite readable. One notes that Montesquieu refers to the 'laws of the material world', and one cannot but think that Newton (1642-1727) has some influence here.

It is interesting too what Montesquieu has to say on economics (Book XX.7):

"Other nations have made the interests of commerce yield to those of politics; the English, on the contrary, have ever made their political interests give way to those of commerce. They know better than any other people upon earth how to value, at the same time, these three great advantages -- religion, commerce, and liberty."

Also interesting is what he writes on taxes:

"12. Relation between the Weight of Taxes and Liberty. It is a general rule that taxes may be heavier in proportion to the liberty of the subject, and that there is a necessity for reducing them in proportion to the increase of slavery. This has always been and always will be the case. It is a rule derived from nature that never varies. We find it in all parts -- in England, in Holland, and in every state where liberty gradually declines, till we come to Turkey." (Book XIII.12)

Also:

"Thus, in the Roman world, as at Sparta, the freemen enjoyed the highest degree of liberty, while those who were slaves laboured under the extremity of servitude.

While the citizens paid taxes, they were raised with great justice and equality. The regulation of Servius Tullius was observed, who had distributed the people into six classes, according to their difference of property, and fixed the several shares of the public imposts in proportion to that which each person had in the government. Hence they bore with the greatness of the tax because of their proportionable greatness of credit, and consoled themselves for the smallness of their credit because of the smallness of the tax.

There was also another thing worthy of admiration, which is, that as Servius Tullius's division into classes was in some measure the fundamental principle of the constitution, it thence followed that an equal levying of the taxes was so connected with this fundamental principle that the one could not be abolished without the other." (Book XI.19)

He discusses exemption of taxes for whole provinces.

18. Of an Exemption from Taxes. The maxim of the great eastern empires, of exempting such provinces as have very much suffered from taxes, ought to be extended to monarchical states. There are some, indeed, where this practice is established; yet the country is more oppressed than if no such rule took place; because as the prince levies still neither more nor less, the state becomes bound for the whole. In order to ease a village that pays badly, they load another that pays better; the former is not relieved, and the latter is ruined. The people grow desperate, between the necessity of paying for fear of exactions, and the danger of paying for fear of new burdens. (XIII.18)

On exemption we also find something like a 'basic income' for nobles:

"We find in Xenophon's Banquet a very lively description of a republic in which the people abused their equality. Each guest gives in his turn the reason why he is satisfied. "Content I am," says Chamides, "because of my poverty. When I was rich, I was obliged to pay my court to informers, knowing I was more liable to be hurt by them than capable of doing them harm. The republic constantly demanded some new tax of me; and I could not decline paying. Since I have grown poor, I have acquired authority; nobody threatens me; I rather threaten others. I can go or stay where I please. The rich already rise from their seats and give me the way. I am a king, I was before a slave: I paid taxes to the republic, now it maintains me: I am no longer afraid of losing; but I hope to acquire."" (Book VIII.2)

Price inflation and wage growth in Holland 1950-2002

Table 20: Price inflation and wage growth in Holland 1950-2002

Source: Central Planning Bureau (January 2003)

<i>Year</i>	<i>% change</i>	<i>% change</i>	<i>1951=100</i>	<i>1951=100</i>
	<i>dlog P</i>	<i>dlog wi</i>	<i>P</i>	<i>wi</i>
1950	8.7	-	90	91
1951	11.1	10.4	100	100
1952	0.3	5.4	100	105
1953	-0.7	4.2	100	110
1954	4.0	9.2	104	120
1955	1.7	8.9	105	131
1956	2.1	8.6	108	142
1957	5.5	10.8	113	157
1958	1.6	4.4	115	164
1959	1.2	2.4	117	168
	<i>dlog P</i>	<i>dlog wi</i>	<i>P</i>	<i>wi</i>
1960	2.3	8.2	119	182
1961	2.1	7.2	122	195
1962	2.6	5.9	125	206
1963	3.8	9.0	130	225
1964	6.5	14.9	138	258
1965	3.6	11.1	143	287
1966	5.3	11.	151	319
1967	2.9	8.8	155	347
1968	2.5	8.9	159	377
1969	6.2	13.4	169	428
1970	4.4	12.8	176	483
1971	7.9	13.6	190	548
1972	8.3	12.6	206	617
1973	8.5	15.8	223	715
1974	9.5	15.6	245	826
1975	10.1	12.8	269	932
1976	9.0	10.9	293	1034
1977	6.1	8.7	312	1124
1978	4.5	7.2	326	1205
1979	4.3	6.1	340	1279

1980	6.9	6.1	363	1357
1981	6.3	4.2	386	1413
1982	5.3	6.3	407	1502
1983	2.8	3.8	418	1559
1984	2.1	0.5	427	1568
1985	2.2	1.8	436	1597
1986	0.2	2.1	437	1630
1987	-0.2	1.4	436	1653
1988	0.6	1.1	439	1672
1989	1.6	0.8	446	1685
1990	2.5	3.0	457	1735
1991	3.1	4.4	471	1811
1992	3.2	4.1	486	1886
1993	2.6	2.9	499	1940
1994	2.7	2.4	512	1987
1995	2.0	1.3	522	2013
1996	2.1	1.1	533	2035
1997	2.2	2.3	545	2082
1998	2.0	4.0	556	2165
1999	2.2	3.1	568	2232
2000	2.6	5.0	583	2344
2001	4.5	4.8	609	2455
2002	2.5	4.2	625	2559

Income distribution in Holland 1950 and 1988

Rijken van Olst (1969:97) provides the Dutch income distribution for 1950. Here income is measured in Dfl thousands (thousand guilders) of 1950, and the observed frequency concerns males with tax obligations. A Dfl is about 0.5 €.

The Centraal Bureau voor de Statistiek (1991:47) provides an income distribution for 1988, in Dfl thousands of 1988, and the observed frequency concerns the 'active' population with an income, i.e. exclusive of fulltime benefit recipients, but, in this case, also exclusive of independents.

Table 21 contains both distributions. Income class $c[i]$ means that incomes from $c[i-1] < c[i]$ are considered, so that $c[i]$ itself is excluded. With $f[c]$ the frequency observed for class c , we can compute the frequency density as $f[c[i]] / (c[i] - c[i-1])$ or the frequency adjusted for the range concerned.

Table 21: Dutch income distribution for 1950 and 1988

1950			1988		
Class (Dfl 1000)	Frequency (1000)	Frequency density	Class (Dfl 1000)	Frequency (1000)	Frequency density
< 1	343	343	< 2	334	167
2	544	544	4	185	92
3	909	909	6	192	96
4	618	618	8	197	98
5	261	261	10	193	96
6	136	136	12	181	90
7	79	79	14	163	82
8	49	49	16	151	76
9	33	33	18	138	69
10	23	23	20	149	74
15	53	11	22	173	86
20	20	4	24	221	110
50	23	1	26	267	134
100	4	0	28	288	144
≥ 100	1	0	30	294	147
			32	291	146
			34	302	151
			36	289	144
			38	237	118
			40	224	112
			45	384	77
			50	257	51
			60	257	26
			70	118	12
			80	65	6

90	37	4
100	22	2
150	50	1
200	10	0
≥ 200	8	0

These data are not comparable, and some aspects are a bit less relevant for our objectives. Apart from the difference in independents, the 1950 distribution excludes females, and the 1988 distribution contains parttimers while the number of parttimers has strongly increased compared to 1950. In both cases it are incomes, and not just labour earnings. However, we can see how far we get.

Table 22 contains a summary review, with both the numbers of persons involved, the total and average income (in currency of the relevant year). It appears that by dropping the lowest 8 classes of the 1988 distribution we are better approximating the situation without the parttimers. This then is used for estimation of the lognormal productivity distributions that are used in the illustrations in the body of the text.

Table 22: Summary of the Dutch income distributions for 1950 and 1988

	<i>Number of persons</i> (thousands)	<i>Total income</i> (Dfl million)	<i>Average income</i> (Dfl thousand)
1950	3096	10993	3.5
1988 with the first 8 classes excluded	4081	154120	37.7
1988	5677	165460	29.1

Program used in the analysis on exposed and sheltered sectors

This program uses the Applied General Equilibrium routine of the Economics Pack (Colignatus (1999)), which routine is based on work of Asahi Noguchi and Silvio Levy, see the chapter in Varian (1993). It is nice to show how simple modeling actually can be made.

```
Needs["Economics`Pack`"]
ResetAll
Economics["AGE`"]
SetFunction[withl, shel] =
  {Function → ( 0.4 (1-q) hs^0.334 + 0.6 (1-q) ms^0.334 + q
ls^0.334)^3,
  CoefficientList → { q → 0.1}, Factors → {hs, ms, ls} }
SetFunction[withl, expo] =
  {Function →
  (( c he^(1-1/s2) + (1-c) me^(1-1/s2))^(1/(1-1/s2)) )^(1-1/s) * (1-d)
+
  d * le^(1-1/s) )^(1/(1 - 1/s)),
  CoefficientList → {c → 0.2, d → 0.01, s → 1.2, s2 → 0.4},
  Factors → {he, me, le} }
SetModel[NumberOfSectors → 2, NumberOfFactors → 3, Utility → CES,
  Production → {Sector[1] → SetFunction[withl, shel],
  Sector[2] → SetFunction[withl, expo] } ]
ownpars = {Utility → {Scale[Utility] → 1, RTS[Utility] → 1, S[Utility] → 0.6,
  FactorE[1] → 0.7, FactorE[2] → 0.3},
  Production → {}, Resources → {15, 75, 10}}
eq = Equilibrium[ownpars]
AllocationTable[Allocation[ownpars]]
shares = (FactorPrices /. eq) * (Resources /. ownpars) / (YEq /. eq)
cpc23 = CPCDiagram[ownpars, AxesLabel → {"Sheltered", "Exposed"},
  AspectRatio → Automatic]
ploteq1 = EdgeworthBowley[ownpars, Factor → {1, 2}, PlotPoints → 50]
(*I = 0*)
SetFunction[withoutl, shel] =
  {Function → ( 0.4 (1-q) hs^0.334 + 0.6 (1-q) ms^0.334 + q
ls^0.334)^3,
  CoefficientList → {}, Factors → {hs, ms} } /. {ls → 0, q → 0.1}
```

```

SetFunction[withoutl, expo] =
  {Function → ((c he^(1-1/s2) + (1-c) me^(1-1/s2))^(1/(1-1/s2)))^(1-1/s) *
(1-d) +
  d * le^(1-1/s)^(1/(1 - 1/s)) /. {le → 0, s → 1.2, s2 → 0.4} // PowerExpand,
  CoefficientList → {c → .2, d → 0.01}, Factors → {he, me}}
SetModel[NumberOfSectors → 2, NumberOfFactors → 2, Utility → CES,
  Production → {Sector[1] → SetFunction[withoutl, shel],
  Sector[2] → SetFunction[withoutl, expo] } ]
pars22 = {Utility → {Scale[Utility] → 1, RTS[Utility] → 1, S[Utility] → 0.6,
  FactorE[1] → 0.7, FactorE[2] → 0.3},
  Production → {}, Resources → {15, 75}}
eq22 = Equilibrium[pars22]
AllocationTable[Allocation[pars22]]
shares22 = (FactorPrices /. eq22) * (Resources /. pars22) / (YEq /. eq22)
cpc22 = CPCDiagram[pars22, AxesLabel → {"Sheltered", "Exposed"},
  AspectRatio → Automatic]
ploteq4 = EdgeworthBowley[pars22, Factor → {1, 2}, PlotPoints → 50]
cpcfin = Show[cpc23, cpc22]
ebfin = Show[ploteq1, ploteq4,
  FrameLabel → {"Total high pr. labour", "Total middle pr. labour"}]

```

A note on Hayek

Writing this book got me to read some of Hayek (1984) - finally, and after great misgivings. As a rule, a student of economics should always read up on the Nobel laureates, but Hayek never inspired me. What I read about his work made it uninviting. In Skidelsky's biography of Keynes he is reduced from a critic of Keynes to someone whom Keynes, exasperated from lack of progress in communication, took along to go and buy old books. Later Hayek got a following of 'libertarians' and that was equally unattractive (not to be confused with 'librarians' ;-)).

I likely agree with Mark Blaug (1985:90): "In short, everyone agrees with what Hayek means in general but there is a large spectrum of answers to what he means in particular. It will take another generation to fully digest Hayek's many and multifaceted contributions to economics and indeed social science as a whole."

What I finally got to read of Hayek actually made me better appreciate part of his work, though the feelings remain mixed.

For starters, it appears that Hayek considers himself to be a 'whig' like Gladstone and de Tocqueville, and that he was not too happy with the 'libertarians'. This is quite a relief to read, and I am sorry that I have entertained such a prejudice for so long. (And: Why can't reporters be more accurate?)

Secondly, Hayek is known in current economics for his early comments on the relevance of 'knowledge'. My hesitation on this remains, though. This hesitation derives from the consideration that he apparently didn't advance beyond Walras's solution of assuming tatonnement, and similarly I find it hard to believe that other early economists disregarded knowledge. (Keynes for example emphasised 'expectations'.) But 'knowlegde' is an issue.

Subsequently, though, I was jolted by Hayek's discussion of the philosophical consequences of his theory of knowledge. Some of his thoughts are precisely the same as mine ! Notably (I could not have said it better!):

"The sense data, or the sensory qualities of the objects about which we make statements, thus are pushed steadily further back; and when we complete the process of defining all objects by explicit relations instead of by the implicit relations inherent in our sensory distinctions, those sense data disappear completely from the system. In the end the system of explicit definitions becomes both all-comprehensive and self-contained or circular; all the elements in the universe are defined by their relations to each other, and all we know about the universe becomes contained in those definitions. We should obtain a self-contained model capable of reproducing all the combinations of events which we can observe in the external world, but should have no way of ascertaining whether any particular event in the external world corresponded to a particular part of our model. Science thus tends necessarily towards an ultimate state in which all knowledge is embodied in the definitions of the object with which it is concerned; and in which all true statements about these objects therefore are analytical or tautological and could not be disproved by any experience. The observation that any object did not behave as it should could then only mean that it was not an object of the kind it was thought to be. With the disappearance of all sensory data from the system, laws (or theories) would no longer exist in it apart from the definitions of the objects to which they applied, and for that reason could never be disproved." Hayek (1984:230-231)

Clearly, a fully 'self-contained model' might take a million years to make - and I doubt whether sense input can be really fully eliminated - but the Definition & Reality approach of using a 'reduced form of stylized facts' is quite along the same tracks, and differs only in digits of accuracy.

Thirdly, Hayek (1984) discusses constitutional reform. I'd rather not use this space to comment on those particular thoughts, especially on those of constitutionally allocating younger women to older men, since I would digress on my subject. But it remains useful to note, then, that more economists have taken up the issue of the constitution. (And to be clear about it: I write these lines with lots of laughter.)

It appears (more soberly) that Hayek is mentioned a number of times by Sen (1999a) "Development as freedom". Sen even states: "(...) my admiration for Friedrich Hayek and his ideas (he has contributed more than perhaps anyone else to our understanding of constitutionality, the relevance of rights, the importance of social processes, and many other central social and economic concepts) (...)" (Sen:257) !

Sen's "freedom" is Hayek's "liberty", see in particular p289-292 where Sen clarifies that 'income' has been and is a useful indicator but tends to be overvalued and mistaken for the true objectives relating to freedom. See the discussion of Sen's book above.

Sen however rightly criticises Hayek's misuse of the argument of 'unintended consequences' against social change, and in fact makes fun of it:

"The idea that unintended consequences of human action are responsible for many of the big changes in the world is not hard to appreciate. Things often do not go as we plan. Sometimes we have excellent reason to be grateful for this, whether we consider the discovery of penicillin from a leftover dish not intended for that purpose, or the destruction of the Nazi party caused by - but not intended in - Hitler's military overconfidence. One would have to take a very limited view of history to expect that consequences match expectations as a general rule." (Sen:254)

"If it is, as Hayek puts it, a "profound insight," then there is something wrong with profundity." (Sen:257)

Sen concentrates on the difference between 'unintended' and 'unpredictability'. I think that the argument can even be stronger than that, but, don't pursue that reasoning here, since it is not the topic of discussion.

Fourthly, it appears that Hayek in "Road to serfdom" argues in favour of a 'guaranteed minimum income for everyone' - which would be called a 'basic income' nowadays. This is actually a fairly decent approach to the poverty problem - though I would suggest that workfare at a living wage would be more appropriate. It is interesting to see that Keynes recommended that book and supported it for its 'ethics and philosophy' (though not explicitly for its economics).

Fifthly, Hayek (1984)'s chapter on Bernard Mandeville is advised reading.

A note on Barrow's "Impossibility"

John D. Barrow (1998) "Impossibility" gives a nice introduction into some of the topics that we encounter when developing the Definition & Reality methodology. I have taken a useful quote from one of his pages to emphasise a main point. A point of consideration however is that Barrow only provides an introduction and a starting point, and there is need for more discussion and refinement of the argument. Some points of warning are:

1. Barrow uncritically adopts Arrow's explanation for his impossibility theorem - and we have shown that this explanation is erroneous.
2. On the logical paradoxes (e.g. Epimenides' Liar paradox [142]) I have presented a 'logic of exceptions' that changes the argument. (Not in this book.)
3. See our discussion on non-Euclidean geometry in the main body of the text.
4. On p23 Barrow suggests that at small dimensions 'concepts' like velocity and position can only exist with 'limited sharpness' - which is a very strange thing to say.
5. Barrow p22 states: "There have occasionally been attempts to find mental consequences of Heisenberg uncertainty, but the general opinion is that the effects are too small on the scale of neurons to have any significant effect upon the human thinking process." Well, Schrödinger gave his cat-example that

quantum mechanics can extend into the macro world. (We don't seem to have that mechanism in our head though, but there can be equivalent ones.)

6. We should be more critical about how physicists deal with their 'measurement problems' in general.

A constitutional amendment for an Economic Supreme Court

As an economic expert I advise to a parliamentary enquiry and a public debate on this issue. It are the present powers in government that must grow convinced of the need for a better balance of powers. The evidence will likely convince them, if only they study it.

The following is a text that may serve as a concept for a constitutional amendment. The text assumes the common Trias Politica. It uses the term "Parliament" for the legislative branch (e.g. US Congress), and "President" for the executive branch (e.g. the UK Cabinet). It then adds the Economic Supreme Court. The given size, terms and other properties of the Economic Supreme Court seem best to create a balance for group decision making, openness, stability and change.

This text has essentially been posted on the internet in 1996. The major current change with respect to that text is a result of Frank Sulloway's "Born to rebel" (1996) and the subsequent reports - Van den Berg (2004) refers to *Nature* - that these findings are not accurate. Sulloway argues that first-borns tend to be less open to new ideas but more likely to have responsible positions. This causes the idea that, since the court should be sensitive to new discoveries and be critical to abuse of authority, it would seem wise to have some test on open-mindedness. This needs to be investigated upon. Since this is a constitution, we should formulate a general rule, and we should leave it to the practical times and state of scientific inquiry how this is implemented, by first-bornness or by some other verifiable criterion.

CG

The nation has an independent and scientific Economic Supreme Court of equal status next to Parliament, the President and the Supreme Court.

1. The task of the Court is to scientifically check the economic data, assumptions, analyses and projections underlying the government's budget and its draft statement, and then possibly veto the official adoption and publication of the budget, if the Court finds that the information used and presented, and in particular the estimates for the deficit and national debt, are not scientifically correct. The Court will publish its findings both for Parliament and for the scientific community.
2. Members of the Court are appointed by the Court itself, subject to a veto by a normal majority in Parliament.
The Court will inform Parliament about the name and credentials of the candidate for appointment. Parliament will have 50 days to discuss and possibly veto an appointment. The appointment of the candidate becomes effective when Parliament does not veto the appointment.
3. The Court consists of 7 members. At least 5 members have a high likelihood of open-mindedness, by criteria generally accepted in the scientific community.
4. Term rules are:
 - a) Each member serves a term of 7 years. Each year the member with the longest term resigns, and a new member is appointed.
 - b) Terms run from May 1st till April 30st, 7 years later. If a member resigns before the end of the term, then the replacement will concern only the remainder of the term.
 - c) Members may only serve for two terms, which terms need not be consecutive. A part term will not count if its duration is less than 4 years.
 - d) All 7 members participate in the selection of a candidate for appointment.
 - e) The Court chooses its chairperson from among its members. Non-eligible are the newly appointed and the resigning member, so that only 5 members are eligible.
 - f) The Court determines its modus operandi further by itself.
5. Parliament may, if the occasion arises, decide to dismiss an existing Court and reappoint a new one, which decision requires a majority of two-thirds. Parliament may not override a veto by the Court, by any majority. It is up to the newly installed Court to decide if a wronged veto is repealed.
6. The means of the Court are as follows:
 - a) The Court can appoint a staff of maximally 150 persons. Minimally 50% of

the staff shall have an appointment as scientist, and they shall operate under both common scientific standards and a special statute that has precedence. This special statute shall be established and published by the Court.

- b) The Court can instruct the President to provide information. The President may refuse information only if national security is at stake. Information that the President regards as confidential will be treated as confidential by the Court and its staff too, unless the same information can be received via independent other channels too.
- c) When State governments within the Federation install their own Economic Courts, then possible disputes shall be settled by the Economic Supreme Court.
- d) The Court can install a council of economists and other specialists from the academia. The Court can install chambers of special competence.
- e) The Court shall have a budget that compares favourably to the average budget of scientific research institutes of the same size.

A parallel argument on the Central Bank

The analysis about the Economic Supreme Court and the 'natural monopoly' argument about economic policy advice, actually finds a parallel with respect to the Central Bank. Reading Galbraith (1998) made me aware of this situation.

Let us regard the situation that market forces determine the rate of interest to a large extent, but that the Bank is not without some power and will use its influence on rates to control inflation.

- **Theory dependence:** The Bank decides on its policy while using an economic model that contains a mechanism for the determination of the rate of interest - for example the rate of interest will contain anticipated inflation. Hence policy is directly dependent upon the state of economic theory.
- **Self-reference (reflexiveness):** Since interest rates are sensitive to Bank policy, Bank policy would be part of the model. Popular thought has it that a good Bank would target at zero inflation, but Bank policy generally would be different. For example, a true zero target would require that a period with inflation is followed by deflation, and Banks generally don't do that. Also, the true price level should include inventories and capital stocks, but inflation generally is measured as the CPI, which is something totally different. These details, and Bank policies on them, should be put into the model (with error terms to allow for possible discretion).
- **Conflictive self-reference:** Clearly, one can conceive the situation that the Bank announces a policy while the true scientific forecast shows that the policy is untenable and will be repealed later. Hence there is an internal source of conflict - the worst kind, not a dysfunctional person, but a logical knot.
- **General conflict of interests:** The Central Bank may not only have the objective to control inflation but also other objectives, like for example supporting and supervising the financial system. For example, the US Fed is not purely a governmental body, but it is rooted in the financial system and it is influenced by private interests therein. See Galbraith (1998:221-231) for a discussion on the conflict of interests - for example on the 'credit crunch' - and read also Krugman on the Savings & Loans debacle.

Hence, along the 'TP & ESC' line of argumentation, we can clearly see a need for reform in existing Central Banking, and the direction that it would need to take. Interestingly, where economic policy of the state would have to be co-ordinated with the policy of the Central Bank (that should best remain independent), there arise questions of structure and priority. My suggestion is to first create the Economic Supreme Court, and have it advise on how to position the Bank or its separate functions.

About the US Council of Economic Advisers

This appendix consists of two large quotes from the White House internet site in January 2000, with my comments added.

From the "Employment Act of 1946"

"There is hereby created in the Executive Office of the President a Council of Economic Advisers (hereinafter called the "Council"). The Council shall be composed of three members who shall be appointed by the President, by and with the advice and consent of the Senate, and each of whom shall be a person who, as a result of his training, experience, and attainments, is exceptionally qualified to analyze and interpret economic developments, to appraise programs and activities of the Government in the light of the policy declared in section 2, and to formulate and recommend national economic policy to promote employment, production, and purchasing power under free competitive

enterprise.

It shall be the duty and function of the Council--

1. to assist and advise the President in the preparation of the Economic Report;
2. to gather timely and authoritative information concerning economic developments and economic trends, both current and prospective, to analyze and interpret such information in the light of the policy declared in section 2 for the purpose of determining whether such developments and trends are interfering, or are likely to interfere, with the achievement of such policy, and to compile and submit to the President studies relating to such developments and trends;
3. to appraise the various programs and activities of the Federal Government in the light of the policy declared in section 2 for the purpose of determining the extent to which such programs and activities are contributing, and the extent to which they are not contributing, to the achievement of such policy, and to make recommendations to the President with respect thereto;
4. to develop and recommend to the President national economic policies to foster and promote free competitive enterprise, to avoid economic fluctuations or to diminish the effects thereof, and to maintain employment, production, and purchasing power;
5. to make and furnish such studies, reports thereon, and recommendations with respect to matters of Federal economic policy and legislation as the President may request. "

Martin Feldstein on the US Council of Economic Advisers

Quoted from *The Economic Journal*, 102 (September 1992), "The Council of Economic Advisers and Economic Advising in the United States", by Martin Feldstein.

The Structure of the Council of Economic Advisers

Although the term 'Council' conjures up the image of a large committee, the CEA actually consists only of a chairman and two members. The chairman is legally responsible for establishing the positions taken by the Council. The other two members direct research activities of the Council in particular fields, represent the Council at meetings with other agencies, and generally work with the chairman to formulate economic advice.

In addition to the chairman and two other members, the CEA has a professional staff that is both small and unusual. A group of about ten economists, generally professors on one- or two-year leaves from their universities, act as the senior staff economists. They in turn are assisted by an additional ten junior staff economists, typically advanced graduate students who also spend only a year or two at the CEA. Four permanent economic statisticians assist the economists in the interpretation and identification of economic data.

The academic nature of the staff and of most CEA members distinguishes the CEA from other government agencies. It generally assures a higher level of technical economic sophistication and of familiarity with current developments in economic thinking. Members and staff also use their strong links in the academic community to obtain advice on technical issues throughout their time in Washington.

There is of course a price to be paid for this reliance on academic economists, especially at the staff level. They often come to the CEA without the institutional knowledge of some of the issues with which they will deal and without any experience in the bureaucratic process of decision-making. My experience however was that most of the senior staff economists learned quite quickly to be effective participants, and made an important contribution to the policy debates because of their ability to apply economic analysis to the issues being discussed, and to develop new economic proposals that had not occurred to non-economist participants from the agencies.

How Advice Is Given

The CEA chairman gives advice directly to the President and to the senior members of the administration. There is also a broader role of trying to shape public understanding of the economic issues. The CEA members and staff participate directly in the inter-agency process, in which policy options are evaluated and recommendations developed for presidential decisions.

The specific organization of advice-giving undoubtedly differs from administration to administration, reflecting the overall form of economic policy making and the particular style and interest of the president. I can only describe my own experience.

In the Reagan administration, the cabinet as a whole rarely met. Instead, economic policy issues were discussed through a series of cabinet councils with more specialized responsibilities. These included a cabinet council on commerce

and trade that was chaired by the Secretary of Commerce, a cabinet council that dealt with labour and social insurance issues, a cabinet council that dealt with regulatory and legal issues, and a general cabinet council on economic affairs that was chaired by the Secretary of the Treasury. Each of the interested departments was represented at the council by the secretary of that department. Occasionally the deputy secretary or under-secretary substituted for the secretary at those meetings. I generally represented the CEA, although occasionally one of the members took my place at the table. Vice President Bush usually attended these meetings.

The councils generally met without the president. Roughly twice a month the president participated in council meetings when there was a specific issue that required a presidential decision or, occasionally, a broad area that seemed appropriate for general cabinet-level discussion with the president.

Any major proposal for legislative action, whether originated by a department or from Congress, would be assigned to an appropriate cabinet council for consideration to develop an official administration position. Initial meetings would be held at a staff level, with the CEA represented by the senior staff economist with the relevant expertise. Often discussion at this level would be sufficient to dispose of the idea, usually with the conclusion that the proposal was well-meaning but misguided and would not accomplish its stated purpose or would do so only at an unacceptable economic cost. This would quietly bury an internal departmental proposal or lead to a formal administration position to oppose a Congressional initiative.

When there was disagreement about the proposal that could not be resolved unanimously at the level of this working group, a higher-level meeting would be held. Each interested department would be represented at a sub-cabinet level, generally by an assistant secretary. The CEA would be represented by a member or senior staff economist, since with only two members it was often true that the CEA only had the expertise at the senior staff level and preferred to send a real expert rather than, as in the other departments, to send a more senior official who was 'briefed' but who did not really understand the issues himself.

Once again, if this group could not reach a consensus the issue would be passed up to the full cabinet council, where the departments were represented at the top level and the CEA by the chairman. If this group reached an agreed recommendation, its conclusion would be sent to the President. When there was disagreement, a summary of the different positions would be prepared by the staff of the council for submission to the president for his decision. These decision memos were carefully prepared so that each side could object to any spurious arguments put forward by others. On some occasions, when it was felt that such written summaries were inadequate, the group would meet with the president to present opposing views.

This process gave the CEA an opportunity to influence both the specific decisions and the way that members of the administration thought about particular issues. This was true at every level from the departmental senior staff that interacted with the CEA economists to the cabinet level.

In addition to these relatively large group meetings with the President, there were also smaller meetings dealing with specific subjects. A central organizing set of meetings each year dealt with the budget. Here the only regular participants, in addition to the president and the vice-president, were the Secretary of the Treasury, the Director of the Office of Management and Budget (OMB), the Chairman of the CEA, and a small number of senior White House staff. The series of budget meetings began with a five-year economic forecast prepared by the CEA. Technical staff discussions and meetings between a CEA member, a Treasury assistant secretary and an associate director of the OMB would review the evidence on which a forecast would be based. It insisted, however, that the CEA alone was responsible for the final forecast in order to avoid a repetition of earlier experience in which the forecast was widely (and correctly) criticized as over-optimistic, and therefore as leading to a substantial underestimate to future budget deficits. Needless to say, this was a source of friction and contention.

Other such small meetings with the president included preparation for the G-7 economic summits, for his televised national press conferences, and for discussions of special subjects like social security reform.

The Secretary of the Treasury and I also met roughly every two weeks with the president and a few senior White House staff to discuss subjects of our choice. The Treasury Secretary frequently used these sessions to discuss monetary policy or issues currently under development at the Treasury. I frequently discussed the budget deficit but also talked about things like the character of unemployment, the nature of the trade imbalance, and other types of general 'background' information. These were not intended as decision-making sessions.

In addition to these meetings, I also sent the president brief memos on particular issues. Occasionally these would be my thoughts on some issue being discussed in the administration. There were also almost daily brief memos telling the President how to interpret important economic statistics that would be released the next morning so that he would not be caught unaware of the information (by the press or other visitors) or uninformed about the significance (or lack of significance) of the particular statistic.

The CEA also serves as a source of professional economic advice to other departments and agencies. In some cases, this serves to reinforce the advice being given by that department's own economist. In other cases, it fills a gap where the department does not have an economist or where the CEA can bring better analysis to a particular problem. As chairman I also met on an individual basis with the department heads to discuss policy issues relevant to their department or more general issues like the budget situation.

A weekly breakfast meeting with the Treasury Secretary and the OMB Director -- the so-called Troika or T-t group -- provided an important opportunity to discuss economic issues with complete candour and without fear of leaks to the press. This small group was occasionally joined by Secretary of State George Shultz and on some rare occasions by Federal Reserve Chairman Paul Volcker.

These breakfast meetings were just about the only time during my time at the CEA when the Fed Chairman participated in a discussion inside the administration. He met privately of course with the Secretary of the Treasury and with various financial regulators. I had breakfast with him every other week and on those occasions we discussed the state of the economy, the direction of monetary policy, banking regulation, and such issues as the developing country debt problem, in which the Fed worked closely with the administration.

As the senior economist in the administration, the CEA chairman is frequently called upon to discuss economic policy issues in public. These include testimony to congressional committees, speeches to a wide array of audiences, occasional television interviews and frequent discussions with the press. I always regarded these as opportunities to teach economics. An important challenge was to explain why the dollar had soared and how that, rather than protectionist policies abroad, was responsible for our trade deficit. Until the recovery was firmly established, I would explain why an expansionary fiscal policy was unnecessary and later I spent endless hours explaining how to assess the structural budget deficit and why reducing it was important.

The Council of Economic Advisers produces an annual report which discusses broad issues of economic policy for a general audience. This report is widely read by the economic press, by Congressional staff and by academic economists and students.

How the CEA Advises Presidents

"I think our unique system of placing a professional economist in the White House to report directly to the president works well. I hope that future presidents continue to use this policy."

The principle of comparative advantage suggests that I, as a former chairman of the Council of Economic Advisers, convey my knowledge of this unique and little understood agency. I emphasize the word "unique" because I believe the CEA is really quite different from advisory institutions in other countries.

During my time as chairman (1982 through 1984), I had the opportunity to talk with the senior economic officials in many countries. I never found one that institutionalized our combination of characteristics: a professional economist who has direct access to the head of the government and who participates as an equal in all cabinet-level discussions.

In other countries, the top economic official is either an economics minister (i.e., a politician selected from the Parliament who may or may not be a professional economist) or a professional economist who reports to the minister of finance or some other cabinet minister. There are also some special situations in which individual economists are influential advisers to the heads of government, but these are personal arrangements that have not been institutionalized in the way that the CEA has been.

One reason why the American system for giving economic advice differs from those abroad is that, in our presidential system, it is the president rather than the minister of finance or budget minister who has ultimate responsibility for all economic matters. In other countries, the prime minister or president is less involved with economic issues and the responsible cabinet member has a political standing and legitimacy in his own right. In the United States, the cabinet is in the last analysis an advisory and management body while all true decision-making authority of the executive branch is vested in the president.

The role of the CEA and its chairman undoubtedly differs over time depending on both the chairman and the president. The differences can be quite profound even within the same set of legal rules. For example, during the Nixon administration there was a period when George Shultz served simultaneously as budget director and as counselor to the president with responsibility for overall coordination of economic advice. But I have not researched the history of the CEA and will therefore focus my comments on the period of 1982-1984 that I know from firsthand experience.

I began by saying that the council is "little understood" because I have frequently discovered that people are quite surprised when they learn how small the council is and how it actually operates. The term "council" seems to conjure up the image of a dozen or more people sitting around a conference table voting on recommendations of economic policy. In fact, the CEA has only a chairman and two additional members.

Since the days of the Arthur Burns' chairmanship in the Eisenhower administration, there has been an official executive order vesting all of the executive authority for the council in the chairman. In practice, that means that the three members have informal discussions but do not take votes. It also means that when a formal recommendation from several agencies is sent to the president, the position taken by the CEA reflects the judgment of the chairman just as the position of the Treasury reflects the view of the Treasury secretary. In giving direct advice to the president, I always spoke for myself rather than on behalf of the Council.

The CEA has a small but high quality professional staff of about twenty economists and four economist statisticians. The statisticians are permanent civil servants who understand the construction of official economic statistics and do their best to save the economists from erroneous use of these data. Because the senior staff economists come from universities for a one- or two-year period, they keep the CEA up to date on the best academic thinking on a wide range of subjects.

Although the CEA is physically as well as operationally part of the White House complex (CEA offices are in the Old Executive Office Building adjacent to the White House and within the same security cordon), the economic staff functions in a completely professional and nonpartisan way. My very able and distinguished staff included Larry Summers, who was prominent as chief economic adviser to presidential candidate Michael Dukakis.

The tradition of professionalism is so strong that even in a presidential election year the CEA chairman appoints members of the staff for the coming academic year with the clear understanding that they will continue to serve even if the party in power loses the presidential election. I might just add in this context that, unlike the practice in some countries, the members of the CEA and their staff work full-time at their CEA responsibilities. Indeed, in December and January of each year, the pressure of working simultaneously on the Economic Report of the President, the budget, and the issues to be presented in the president's state of the union message seemed like much more than a full-time job.

The CEA was created by the Employment Act of 1946 with a Keynesian heritage and an expectation that it would give advice about the use of fiscal policy to achieve and maintain full employment. Needless to say, there has been a profound change in the economics profession's thinking about macroeconomic policy in the past forty years.

Commenting on this

Above description of the US CEA shows that it is very close to the Executive. There is 'professionalism' - and we may willingly interpret that to mean that one keeps a distance to political scheming and the illusions of the day - but still, this is not auditing, this is not verification for verification's sake, this is not vetoing David Stockman, this is not sticking to one's own perception of what the right model is regardless of what the President likes to think. If there would be an Economic Supreme Court, then, indeed, the President would still have need for advice as currently provided by the CEA. One would imagine that CEA staff members would frequent the Court's offices, and such. But the constitutional powers would be institutionally separated.

We can see that the CEA is so understaffed and so preoccupied with its duties of 'running about for the President', that it failed to pick up an important analysis. In April 1993, I sent a major piece of my work to the CEA. And got no reply.

In August 1993, I actually visited the US Treasury, but with little success. See the appendix on presenting the analysis to the US National Press below, and the autobiographical appendix as well.

At the end of August, 1993, President Clinton announced a major increase in the Earned Income Tax Credit (EITC) - see next appendix. I don't think that my paper and visit contributed to that. If it has, they should have replied - and could have gone much further. (But I do think that the Clinton EITC measure helped, as one factor, to create the subsequent the long boom in the US economy. There was more competition on the labour market, and this helped to reduce wage growth.)

CG

To prof. Blinder
& prof. Stiglitz

Council of Economic Advisers
White House
Old Executive Office Building

Washington DC 20500
Verenigde Staten van Amerika

April 16 1993
Concerning: unemployment and inflation

Dear professors,

It takes time to get things published, so I overcome my hesitations and send you enclosed paper. It is one of the fruits of 15 years of econometric research, including long term projections with 2000 equations models.

The paper gives a structural analysis of unemployment, regardless the state of inflation. The analysis can be extended on the time path of inflation.

You should read it with a good intuition of the importance of heterogeneous labour and a reduced form analysis.

I am glad to answer any questions.

Kind regards,

Drs. Thomas Cool
Rotterdamsestraat 69
2586 GH Scheveningen
Holland

Enclosed: paper "On the political economy of employment in the welfare state"
[Chapters 39 and 40 of this book]

Presentation for the National Press in Washington 1993

The following is a bit of an embarrassment, but modern courage is not fighting wild animals but facing such possible views in public opinion. Anyway, in 1993 my Class of '73 (of Burbank Highschool, California) had, guess what, a 20 year reunion. I took the opportunity to visit Washington, visit the US Treasury, and also present my analysis at the National Press Building. When I arrived there on August 17, it appeared that almost everyone had taken their holiday, following President Clinton to Martha's Vineyard. My appointment with the Treasury lasted only some 20 minutes, and my host was too much involved in the Health Plan and showed no interest in my analysis. The journalists subsequently must have been at the beach - or in Europe - since nobody showed up. Perhaps my press release was uninviting too - judge for yourself, below. I took care that it was distributed to all agencies - which was another bill to pay. The idea remains: people have had the opportunity. Note 1: Had I still been at the CPB, then my possibility frontier with US officials of course had been larger. Note 2: My foreign exchange year at Burbank High and participation in the US National Forensics League apparently rubbed off, and I got some editing help from an American friend: so that my presentation was All American.

To Mr. Paula Pikulski
Catering Office
National Press Building
Washington DC

FAX 1 202 6627512

Friday August 13 1993

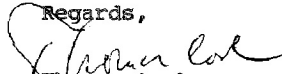
Ms. Pikulski,

With this FAX you find a Press Release consisting of two pages, first the Press Release itself and secondly my CV. I would like that your Press Release Service copies these on a double sided sheet and distributes this to the 300 some agencies in your building.

I also confirm the rental of the Murrow room for Tuesday August 17 from 12:00 till 15:00 hours, for a press conference starting at 13:00 hours.

You can reach me till Sunday at 1 504 3930485 and from Sunday evening at 1 202 6381616.

Regards,


Thomas Cool

PRESS RELEASE

Press conference at the National Press Building, Washington DC
Morrow Room, Tuesday August 17 1993, 13:00 - 14:00 hours

IT IS TIME FOR AN "ECONOMIC SUPREME COURT"

&

HOW TO CREATE JOBS

by Thomas Cool

European Economist & President of the Sociaal Liberaal Forum

1. The bad economic record of the last decades has not been caused by economists, but by the policy making process which allows politicians and special interests to distort the input of economists.

2. The economic record will worsen if we don't change the economy and if we don't change the policy making process. After two decennia of bipartisan voodoo economics we need a bipartisan initiative to get this Nation back on the road.

3. Early this century the Federal Reserve Bank was created with some independent powers, and it has worked reasonably well to the prosperity of the Nation. Similar for the CEA. We need to go one step further, and create an additional Economic Supreme Court (ESC) safeguarded within the Constitution. We need to move some power from the political muscle to the brain of the economy experts. It is not the argument that politicians would not be qualified in economics. It is the argument of the balance of power. Having an Economic Supreme Court safeguarded by the constitution increases democracy, since it improves the checks and balances. It caters to the civic right of good government and the right to know.

4. The President would appoint members of the ESC in the same manner as for the US Supreme Court. The duty of the Court would be to set macroeconomic forecasts and parameters which would be mandatory for the national budget. The Court would be supported by a council of economists from the academia. The Court would have the power to veto the national budget on economic grounds. Congress would hold the power on the budget and policy making, but it would lose the power to go against economic sense as judged by experienced and respected economists on the Court.

5. The economics of the bad record are complex. A crucial point is that tax exemption has been indexed for inflation instead of nominal income. Presently, taxes increase labour costs and are a major cause for unemployment, inflation and low growth. Taxes must be targetted to jobs and to keeping people from welfare and food stamps, as basically was the case in the 1950s. Lowering dynamic marginal rates will stimulate economic growth.

6. The US needs a Congressional investigation and a public debate on this issue. It are the present powers that must grow convinced of the need for a better balance of powers in government.

7. PM. The argument holds similarly for all Western nations. Nations acting on this will gain a competitive edge. If most nations act on it, we can deal with the challenges of the future.

Curriculum Vitae (d.d. August 1993)

Name Cool, Thomas Herman Anthonius Maria

Private address Rotterdamsestraat 69
Schiedamschening, NL-2586 GH Nederland
Phone 011-31-70-3522978

Business address Unite de Coordination de la Lutte Anti-Fraude (UCLAF)
Commission of the European Community, Brussels, Belgium
Phone 011-32-2-2963564

Birthplace/date Jakarta, Indonesia, August 5 1954
Marital status Unmarried, one child
Military None
School Gymnasium Beta, including Spanish
Foreign exchange student, Burbank Highschool, California

1973-1982 Rijks Universiteit Groningen, Faculty of econometrics:
Mathematics, mathematical statistics, general economics,
business economics, operations research, international
economics, public finance, econometric methods,
mathematical logic, philosophy of science, graduation
paper on time lags in multisectoral models

Degree Master of econometrics
Planned degree 1995 thesis at Leiden University, working title:
Definition and Reality in the general theory of political
economy

1982-1991 Researcher, Central Planning Bureau (CPB) of the Dutch
Government (comparable to the Council of Economic Advisers),
first as a specialist for the paper, printing & publishing
industries, later for economy-wide multisectoral analysis

1992-1993 Adviser to the Dept. of Transport, Spatial Planning,
Housing & the Environment

1993-present Consultant at UCLAF

Past positions Faculty council and faculty board, university newspaper
board, board of a local section of a political party,
chairman of a local section of a Hobby Computer Club

Present positions Member of professional organisations KVS, NVMC, Ecozoek,
Eur. Ec. Ass.
President of the Sociaal Liberale Forum

Bibliography - Participated in CPB publications e.g. on "Europe 1992",
multisectoral analysis of the Dutch Economy, the National
Environment Plan, the long run up to 2015 for the
world economy and Holland in particular, Athena model
- Various internal CPB reports on a variety of subjects
- Various newspaper articles (with others)
- Bundle of articles in bookform: ISBN 90-5518-207-9

Hobbies Computers, writing SF, opera singing, gastronomy

AUG 13 '93 16:09

818 791 4192 PAGE.003

Clinton administration EITC plans for 2000

(The following is quoted from the White House internet site.)

THE WHITE HOUSE Office of the Press Secretary

For Immediate
Release

January 12,
2000

PRESIDENT CLINTON PROPOSES TO EXPAND THE EARNED INCOME
TAX CREDIT IN ORDER TO INCREASE THE REWARD FOR WORK AND
FAMILY

Today President Clinton Will Announce, in his Address to the Democratic Leadership Council, A New \$21 Billion Plan to Expand the Earned Income Tax Credit -- A Key Part of His "New Opportunity Agenda." The President's proposal would expand the Earned Income Tax Credit (EITC) to provide tax relief for 6.4 million hard-pressed working families. The expansion will cost about \$21 billion

over 10 years.

Building on the Successes of the 1993 EITC Expansion. In 1993, the President signed into law the largest EITC expansion ever to provide a tax cut for 15 million working families while rewarding work and family. Today, the success of the EITC in reducing poverty and encouraging work is clear:

- **4.3 Million People Directly Lifted Out of Poverty by the EITC in 1998** -- more than double the number lifted out of poverty in 1993.
- **2.3 Million Children Directly Lifted Out of Poverty by the EITC in 1998.** This includes 600,000 African-American children and 600,000 Hispanic children..
- **Largest Drop in Poverty and Child Poverty in Over Three Decades.** The poverty rate has fallen from 15.1 percent in 1993 to 12.7 percent in 1998 -- the lowest since 1979. At the same time, the child poverty rate fell from 22.7 percent to 18.9 percent -- the lowest child poverty rate since 1980.
- **More Single Mom's Are Working Than Ever Before.** The percentage of single mothers who work and receive no welfare has risen from 60.9 percent in 1992 to 75.0 percent in 1998.

The President's Proposal Increases the Reward to Work and Family in Four Ways:

- **Expand the Maximum Credit for Working Families with Three or More Children By \$500.** This would provide a tax break for 2.1 million low- and moderate-income working families. This expansion is targeted at the highest concentration of child poverty: in 1998 the poverty rate for children in families with three or more related children was 28.5 percent -- more than twice the 11.9 percent poverty rate for children in families with one or two related children.
- **Expand the Credit for Married, Two-Earner Couples.** This would benefit over 1.3 million married filers. For married, two-earner couples, this provision by itself would provide an average tax break of \$250.
- **Increase the Reward to Work While Expanding the Credit for Families with Two or More Children.** This would provide an additional tax break, and an additional incentive to work, for families with two or more children by lowering the phase-out rate to give more rewards to families struggling to work their way into the middle class.
- **Encouraging Savings Through Simplification.** Currently, when a working family contributes to a 401(k) they may see their EITC reduced. This proposal encourages savings and simplifies the calculation of earned income for the purposes of the EITC.

Here is How These Changes Would Increase the Reward to Work for American Families:

THE PRESIDENT'S PROPOSED INCREASE IN THE EARNED INCOME TAX CREDIT

	Pre-1993 Law	Current Law	Proposal	Increase
Married*; 2 children; \$20,000 earnings	\$1,438	\$2,524	\$2,940	+\$416
Individual; 3 children; \$15,000 earnings	\$2,331	\$3,577	\$4,116	+\$538
Married*; 3 children; \$23,000 earnings	\$902	\$1,892	\$2,867	+\$975

*Both spouses must earn at least \$725 to qualify for the additional credit for a married couple.

DETAILS OF THE PRESIDENT'S PROPOSAL

The President's Proposal Would Expand the Earned Income Tax

Credit to Provide Tax Relief for 6.4 Million Hard-pressed Working Families. The average increase for families with three or more children is \$544 and some married couples with three or more children could see as much as an additional \$1,155 tax credit. The expansion will cost about \$21 billion over 10 years. The four major provisions of President's EITC expansion are:

Expand the Maximum Credit for Working Families with Three or More Children By \$500. The President's proposal would add a "third tier" to the EITC to expand benefits for families with three or more children. Very low-income families will get 45 cents for every additional dollar they earn -- compared to 40 cents under current law. This higher credit rate will increase the maximum credit for a family with three children in 2001 from \$3,992 to \$4,491 -- a roughly \$500 increase. This proposed new "tier" of the EITC is important because 60 percent of all poor children -- 7.7 million children -- are in families with three or more children. Adding a third tier to the EITC would provide a tax break for 2.1 million low- and moderate-income working families.

Expand the Credit for Married, Two-Earner Couples. The President's proposal would allow married couples to earn an additional \$1,450 more before beginning to have their EITC phased out. For example, in 2001 a married, two-earner couple with children would be able to earn up to \$14,480 and still receive the maximum EITC, as compared to the \$13,030 threshold under current law. The result of this provision would be to provide an additional \$250, on average, for married, two-earner couples. This provision would benefit over 1.3 million married filers.

Increase the Reward to Work While Expanding the Credit for Families with Two or More Children. The third provision of the President's proposal would provide an additional tax break, and an additional incentive to work, for families with two or more children. Under current law the EITC for these families is reduced by 21.06 percent for each dollar they earn above the maximum threshold. The President's proposal would lower this phase-out rate to 19.06 percent -- a tax break for 5.4 million of America's hard-pressed working families.

Encouraging Savings Through Simplification. Under current law, 401(k) contributions and other forms of nontaxable earned income are counted as income in computing the EITC. For many families this means that if they increase their contributions to a 401(k) then they will see their EITC reduced. The President proposes to encourage savings for poor people by eliminating nontaxable earned income from the calculation of the EITC. In addition to encouraging savings, this step will simplify the EITC, and continue to increase compliance.

THE PRESIDENT'S 1993 EITC EXPANSION HAS CONTRIBUTED TO THE LARGEST REDUCTION IN POVERTY IN OVER THREE DECADES

In 1993, the President Signed Into Law the Largest EITC Expansion Ever. The President's policy provided a tax cut for 15 million working families. For every dollar a very low-income working parent with one child earns, the EITC was increased from 23 cents to 34 cents (25 cents to 40 cents for two plus children). The maximum credit was increased by over \$1,500. The income limit on eligibility was increased by about \$3,700.

Nearly 19 Million Families Claim the EITC. In FY 1999, the total cost of the program was \$30.5 billion. In 2001, the average credit for all claimants will be \$1,680 and for claimants with children it will be \$1,990. [Source: U.S. Department of the Treasury]

In 1998, the EITC Was Directly Responsible for Lifting 4.3 Million People Out of Poverty -- Twice the Number Lifted Out in 1993. Census Department statistics show that the EITC was directly responsible for lifting 4.3 million people out of poverty in 1998 - more than twice the number lifted out of poverty in 1993. The indirect contribution of the EITC to poverty reduction may be even greater given the evidence that the EITC provides a powerful incentive to work. [Source: Calculations using data from the U.S. Census Bureau.]

In 1998, the EITC Was Directly Responsible for Lifting 2.3 Million Children Out of Poverty. The 2.3 million children lifted out of poverty by the EITC include 600,000 African-American children and 600,000 Hispanic children. [Source: Calculations using data from the U.S. Census Bureau.]

Expanded EITC and Higher Minimum Wage Has Led to Large Real Income Growth For Hard-pressed Families. A working parent with two children earning the minimum wage in 1993 made \$10,559 with the EITC (in 1998 inflation-adjusted dollars) -- well below the poverty line. With the 1993 increase in the EITC and the 90 cent increase in the minimum wage in 1996 and 1997, a similarly situated family in 1998 was above the poverty line -- making \$13,268 -- a 26 percent inflation-adjusted increase in their standard of living.

Poverty Rate Fell To 12.7 Percent in 1998 -- Its Lowest Level Since 1979. The poverty rate has declined from 15.1 percent in 1993 to 12.7 percent in 1998 -- that's the largest five-year drop in poverty in nearly 30 years (1965-1970). There are now 4.8 million fewer people in poverty than in 1993. (In 1998, the poverty threshold was \$16,660 for a family of four.) [Source: U.S. Census Bureau]

The Largest Five-year Drop in Child Poverty in More than Three Decades. While the child poverty rate remains too high, between 1993 and 1998, the child poverty rate has declined from 22.7 percent to 18.9 percent -- that is the lowest child poverty rate since 1980 and the largest five-year drop in nearly 30 years (1965-1970). [Source: U.S. Census Bureau]

The Poverty Rate for Children in Families with Three or More Children is More than Double the Poverty Rate for Children in One or Two-Children Families. Although the poverty rate for children in families with three or more related children has fallen from 32.3 percent in 1993 to 28.5 percent in 1998, this is still more than twice the 11.9 percent poverty rate for children in families with one or two related children. 7.7 million children in families with three or more children were growing up in poverty in 1998. [Source: Calculations by the Department of the Treasury using data from the U.S. Census Bureau.]

THE EVIDENCE IS OVERWHELMING THAT THE EITC ENCOURAGES WORK

More Single Mothers With Children Are Working Than Ever Before. After staying essentially constant in the 1980s and early 1990s, the percentage of single mothers aged 16 to 45 who work and receive no welfare has risen from 60.9 percent in 1992 to 75.0 percent in 1998. The percentage of single mothers who worked rose from 73.7 percent in 1992 to 86.6 percent in 1998. [Source: Calculations by Professor Jeffrey Liebman using data from the Bureau of Labor Statistics' March Current Population Surveys.]

According to One Study, More Than 60 Percent of the Increase in the Employment of Single Mothers Has Been Due to Expansions of the EITC. Bruce Meyer and Dan Rosenbaum find that 63 percent of the change in the employment of single mothers between 1984 and 1996 can be explained by the expansions of the EITC. [Source: "Welfare, the Earned Income Tax Credit, and the Labor Supply of Single Mothers." National Bureau of Economic Research Working Paper No. 7363. September 1999.]

Another Study Predicted That the 1993 EITC Expansion Would Induce 516,000 Families To Move From Welfare to Work. Stacy Dickert, Scott Houser, and John Karl Scholz found that the 1993 EITC expansion would induce 516,000 families to move from welfare to work. [Source: "The Earned Income Tax Credit and Transfer Programs: A Study of Labor Market and Program Participation." Tax Policy and the Economy No. 9, MIT Press: Cambridge, 1995.]

Another Study Shows that Increasing the Reward to Work, Increases Labor Force Participation. Nada Eissa and Jeffrey Liebman found that the EITC significantly increases labor force participation among single mothers, especially less educated women. [Source: "Labor Supply Response and the Earned Income Tax Credit." Quarterly Journal of Economics 111(2), 1996.]

Comment January 2000, that still stands in 2004: These are still relatively small effects. In that sense we should not overestimate the impact of the 1993 EITC change on the increase in competition on the labour market and the US booming economy. And having a higher gross minimum wage does not help - the Card & Krueger argument does not convince for the general situation. /TC

Summaries of additional papers

There are two papers that have not been included for brevity's sake. It is useful to include their summaries however. Both papers are available on the internet.

(1) Colignatus (1996d) "An institutional explanation of structural unemployment of low income labour", presentation for the Dutch "7th Research Day of the Social Sciences", Amsterdam, ewp-oth/9605001. The idea of this paper is to use results of social psychology to identify the real forces implied by the reduced form theorems. The paper's summary is:

"Structural unemployment of low income labour has causes in institutional settings. Directly, there is a systematic error in the coordination of employment policy and tax policy. Indirectly, the system of coordination shows a deficiency in its capacity to repair systematic errors.

Many people see the cause of mass unemployment in technology and 'globalisation', which are factors on the demand side. Others see the cause in high benefit levels or in low levels of education or educationability, which are factors on the supply side. These explanations allow little room for policy making, especially when the benefit level is regarded as social subsistence. There however is a third explanation, one that has been put forward by employees of the Dutch Central Planning Bureau (CPB), first Van Schaaik in 1983, then Bakhoven in 1988 and Colignatus in 1989-1996. In this approach the cause of unemployment must be found in policies on taxes and social security, an area where policy can do a lot. In this third approach, technology and trade have reduced the problem of unemployment, since they have boosted productivity. Since the problem lies with labour costs and the demand for labour, supply factors like the benefit level are less relevant. This third approach does not attract much attention. The three authors are little known, even though they at the time worked at a renowned institute.

This paper intends to raise the attention level towards asking the proper questions about current stagnation. The best way to tackle stagnation likely is the institutional approach. The economy and its management can be regarded as a *system*, which system comprises the community of economists, officials, politicians, journalists and 'the general public'. This paper then proceeds by using Aronson's book on social psychology to discuss various properties of the system and relations within it, and the behaviour of the participants in the collective decision making on this complex issue. The discussion results into a number of questions for further research."

(2) Colignatus (1998c), "On the paradox of efficiency improvement at the micro level and Productivity Slowdown at the macro level: The case of Efficient Inventory Control", ewp-get/9805003. The summary is:

"Last decades show a Productivity Slowdown at the macro level, while at the micro level we have seen a huge attention for business economics and operations management - and we now have a decade of booming stock markets. This paper tries to tackle that paradox by singling out the issue of Efficient Inventory Control. This seems to be the part of the business process that comes closest to the problem of the Productivity Slowdown. Namely, when inventories are reduced, then this normally means that part of demand is serviced from inventories, and this means lower production. Estimating stylized relationships for the US, we find that inventories in 1997 are 25% lower than they would have been otherwise, and the level of production is 0.56% lower at an annual basis. However, real GDP growth is not really affected, since the annual change in inventory is a very small percentage of GDP. Thus, business success stories that are based upon inventory reduction - which is regarded as efficiency improvement at the micro level - can be reconciled with stagnation at the macro economic level."

A note on the New Economy (2000)

(The following note was written in 2000 and it still stands in 2004.)

The US economy has shown steady growth from 1992 till 2000, and people have been talking about a New Economy. The stock exchange has exploded, the Productivity Slowdown seems to be over, unemployment has been dropping below the CWIRU (NAIRU) while prices have remained stable, an Asian Crisis that might have turned into a big depression did not do that: and economists have been looking all over to find causes. The New Economy answer would be that the Volcker - Reagan years have created a stable environment, and that technology now is causing all kinds of revolutions. Computers, the internet, biology,

a better understanding of economics and capital markets, you name what, the interaction of all these: they all cause a wholly different world. And billionaires to prove it.

My view on this issue is sensibly guarded.

Yes, the internet indeed has interesting properties, vide Shapiro & Varian (1999). I have been using computers intensively since 1972, have my own software on the internet - see Colignatus (1999). Yes, on biology and other technologies the possibilities are huge, and man can be a creative animal.

No, it all is plain old economics. Shapiro & Varian (1999) make that clear too. Also: (a) It should be obvious by now that my own analysis on unemployment and inflation already provides much of the answers. Many causes why the CWIRU dropped can be identified - e.g. the EITC increase (labour cost reduction) in 1993, and the abolishing of 'welfare as we know it'. Society has started to accept a lower subsistence level - which is a dubious origin of growth for the rich. (b) Lower taxes for the rich gives them more money e.g. to invest in the stock market. (c) Americans have been borrowing. (d) The fact that 1970-1992 was a low period in post-War US history does not mean that the current 'high' is so high. I think that the basic foundation was given by FDR, and hence the creative human energy was provided with a stable environment to prosper. The 1970-1992 period fouled up the FDR heritage. Getting back to that heritage is important - but not something 'new'. (e) Of course there still are many people in poverty, and many are seduced to crime which ends them up in prison. (f) The New Economy is much coloured by Wall Street, the Jones's driving up the property price of the Jones's. The financial system still needs reworking.

I think I could go on, but I'd rather stop. The basic idea is that if there is a new kid on the block then this does not mean that the block has changed. In particular when the kid is someone old who everybody has forgotten about. In economics, though, perceptions are important - and the New Economy idea might be relevant for that.

On the 2005 edition of this book

This 2005 edition of this book is virtually the same as the 2000 edition. This note discusses the points of consideration.

(1) The major change seems to be that I now use the name Colignatus for my scientific work for better distinction from political or commercial work. I remain of course a single individual but the papers and books can be usefully labelled differently. In some archives you will have to keep searching on the name "Cool".

(2) Unfortunately, I have not been able yet to extend the discussion as indicated in chapter 32 on dynamic optimality. The prime cause is a new job in a new field that required much new study.

(3) The book now uses euro's. I didn't use the latest data but use those of Colignatus & Hulst (2003) for consistency. The Enlargement of the EU from 15 to 25 member states on May 1 2004 caused some changes in the data and text however. A discussion with Henk Folmer (Wageningen University) caused an update on OECD data and papers, clarification of some points in the argument, and the longer Abstract below.

(4) Colignatus (2001) "Voting theory for democracy" is my implementation of the theory on social choice within *Mathematica*. An earlier suggestion of (1990c) for an algorithm was developed in more detail, which caused me to find a name for it: this became the "Borda fixed point" approach. Further reflection caused the paper Colignatus (2002) "Without time no morality" that now has been adapted to a new chapter in this edition. The total enriches the analysis on Arrow's Theorem with a practical social choice algorithm.

(5) The chapter with notes on ethics has been added.

(6) The chapters on the reduced form have been re-united into Book IX again. In the earlier paper Colignatus (1992b, 1995a) they already formed a unity, but in the first edition of this book they got separated for a reason that appeared unconvincing.

(7) Since Colignatus (1990) had in its title "After 20 years of mass unemployment", I could write (2004) "After 35 years of mass unemployment", and this has been included as a chapter. Since the (1990) paper was hit by censorship and the intermediate years have seen no resolution of that matter, I now advise to a boycott of Holland till that censorship is resolved. Please study the chapter closely.

(8) The following comments can be included at this very spot:

(a) Much of current policy focus is on the EU Lissabon Strategy and issues like pensions. This book does not explicitly discuss these but it would be a mistake to conclude that this book would not be relevant for those topics. The point is that this book already had that long term approach to start with. Lissabon and pensions are new kids on the block and one should rather study this book before proceeding

with new policy making.

(b) Advised reading is Skidelsky (2000), the third part of his biography of Keynes.

(c) Lomborg (2001), "The skeptical environmentalist. Measuring the real state of the world", gives an impressive review of the problems in this subject. As an economist and non-ecologist it is difficult for me to say anything about his comments on the state of the ecology. Three statements in the realm of political economy are:

(b1) Lomborg does not yet take account of the argument by Hueting (1980) and Van Ierland et al. (2001). Statistical measurement of national income derives from the economic theory of social welfare. To approximate the social welfare function we use the income hyperplane that is tangent to it. Market prices for the environment will not suffice since there are market failures.

(b2) In his discussion on the 'double dividend' Lomborg relies on economic papers that do not take into account both the analysis by Hueting and the analysis provided in this book on the Trias Politica, unemployment, the tax void and dynamic marginal rates.

(b3) The case for an Economic Supreme Court appears enhanced. Human flourishing requires proper environmental protection, and monitoring of the information about the environment then requires proper safeguards.

(d) Shiller (2003), "The new financial order. Risk in the 21st century", discusses how the market with proper government regulation can give rise to new risk instruments. Part of what I try to do with the constitutional amendment for an Economic Supreme Court, he tries to do with 'macro-markets', i.e. financial instruments based upon macro variables: namely, getting better information. My impression is that both approaches have merits of their own, and that it helps to disentangle what the instruments are intended for precisely. Similarly, the analysis in this book on unemployment cannot be replaced by an insurance on the distribution of income. Yet, when these more basic reforms on the Economic Supreme Court and unemployment have been implemented, Shiller is right that welfare can be improved by novel risk instruments.

(e) Gould (2000:294-297) discusses Sulloway (1996) with sympathy. This seemed relevant given the importance of the latter for the draft constitutional amendment for an Economic Supreme Court. However, Van den Berg (2004) in Dutch NRC-Handelsblad reports that the validity of Sulloway's finding is seriously questioned in *Nature*.

(f) I reread Ayer (1936, 1978), "Language, truth and logic", and was struck by his discussion of Poincaré. Ayer, page 115: "For a well-chosen definition will call our attention to analytic truths, which would otherwise have escaped us. And the framing of definitions which are useful and fruitful may well be regarded as a creative act." In the "definition & reality methodology" the idea is that definitions concerning stylized facts are "useful and fruitful". Williams (2002), "Truth and truthfulness", is advised reading. What I take from it is that people have a 'sense' what is true or not, whether they are right or not, and that society can benefit from giving proper way to this 'sense'. Now, what would be a proper way? My approach is to give more attention to science and the scientific attitude.

(g) Colignatus & Hulst (2003) is a Dutch booklet that summarizes the scientific argument in this book for the Dutch lay public. This booklet also relates to the murder of the Dutch politician Pim Fortuyn in 2002. There is a peculiar streak in Dutch society that is wildly at odds with its reputation for tolerance. Namely, the Dutch can react strongly to someone who threatens their view of the world. A similar phenomenon can be observed in other cultures too, but it is strong in Holland. My inclination is to link this phenomenon to the observation in Cavalli-Sforza (2000:184) of different mentalities in France: "Hervé Le Bras and Emmanuel Todd [1981] have recently refined ideas by the French sociologist Fredericq Le Play. They believe three major types of families exist in France. (...) have proposed a controversial but stimulating hypothesis that says family structure influences political structure". These types are related to the history of Celts, proto-Basque and Franks. My impression is that Dutch society is similarly subject to some cultural mentality.

(h) When I discussed the consequences of the CPB censorship for public health, this caused developments that led to my dismissal in August 2004 from the Erasmus MC Dept. of Public Health. This is another breach of the integrity of science. Dutch readers are referred to my website. All this is too fresh to include it in this book.

(i) November 2, 2004, Holland saw Theo van Gogh murdered. He is a grandson of Vincent van Gogh's brother Theo (the elder). The younger Theo is said to have been a talented though controversial film director. The Van Gogh family had donated its collection of paintings to the state and Theo van Gogh had trouble finding funds to develop his talent. When he was murdered he was completing his film 0605 of the murder of Pim Fortuyn. Van Gogh's murderer of Moroccan decent expressed his delusion of the 9-11 ideology. This is a new element in Dutch society that can only be understood with the input of the Bush policy on Iraq. It must be noted though that Theo van Gogh protested regularly to that other original streak in Dutch society referred to above, namely that Holland is not as tolerant and open as it may seem. One can summarize the situation as that a truly tolerant Holland would have had no fertile ground for that 9-11 ideology, while the resulting criminal extremist killed the critic of that intolerant streak.

(j) There are some Dutch books that deserve an English translation. Here I only translate the titles. Klever (1990), "Pure economic science", takes his position in

Spinoza and argues that economic science should be developed from first principles in a deductive fashion. This strikes me as quite similar to the "definition & reality methodology". Mathematical economics already had the deductive approach, and econometrics assumed that only statistical approximation was feasible, but we can do better if we can find definitions that fit stylized facts. Klever also recovered Franciscus van den Enden (1665, 1992), "Free political theses". That author was a teacher of Spinoza and his book argues that democracy is the only form of government that can safeguard stability and general welfare. Klever (1981), "Dialectic thinking", must be mentioned for a better understanding of the deductive method. His discussion of Poincaré and his pupils, for example, clarifies the creative element in mathematics. Guépin (1985) "Civilization" and Guépin (1994) "The difference in opinion" defend classical rhetorics as the essence of civilized mentality. These books provide a wealth of information and are a useful antidote to expecting too much from deduction only. He highlights the tension between rhetorics and deduction by criticizing Socrates that it is rather easy to impress people by goading them into inconsistencies when they have not first defined their terms properly. (Rhetorics cannot make fun of rule based inference if the only goal of rhetorics is to get better inference.) Guépin also highlights that deduction thrives with dichotomy but hesitates with the *sorites*, i.e. the problem of accumulating grains of sand until the mountain moves.

Autobiographical note

This book completes a project that started in 1989 and that is closely related to the Fall of the Berlin Wall in that year.

At that time in 1989, and in fact from 1982-1991, I was employed as a 'economic scientific researcher' at the Dutch Central Planning Bureau (CPB), which institute can be compared to the US Council of Economic Advisers. The CPB provides the executive branch with economic projections and with evaluations of policy proposals. In 1989 I was involved in test runs for a study of the economy for the long run till 2015, later published as the CPB (1992a&b) "Netherlands in Triplo" and "Scanning the future". The test runs showed continued economic problems, and this caused me to consider some points. If the Bureau would publish bad weather projections, then these might cause the government to enact economic reforms that would self-unfulfill the projections. Secondly, my CPB colleagues Van Schaaijk (1983) and Bakhoven (1988) had presented a solution approach to unemployment that did not get the attention that it deserved. Thirdly, when the Wall fell, it was obvious that continued unemployment in Western Europe would be detrimental to economic recovery in the East, and this suddenly made unemployment much more important than it had been before. So in November I wrote an internal memo Colignatus (1989) proposing various economic reforms that might be considered as research projects not only for the final version of the long run study but also for the medium run.

Then, in December, in deciding on the annual pay rises, the CPB directorate withheld part of the normal raise for me, and my section chief informed me that it would have been better if I had not written that memo. Apart from the bizarre sensation that a hundred billion dollar invention was being punished instead of rewarded, I also experienced the sensation that comes when the dime drops or when the pieces of a puzzle fall together. I could not escape the conclusion that I was confronted with a particular piece of evidence of stagnation in policy making, and that improper means were being used to influence scientific discourse. Taking stock: my career position was blemished, my creative contribution was branded as weird instead of simply creative, and I was apparently supposed to no longer judge ideas on their own value but on some line that was decided by the directorate. If these methods were used, I could understand why colleagues Van Schaaijk and Bakhoven had become silent on their important contributions to the solution approach, or had left the Bureau altogether.

So in December 1989 I easily envisaged a book that would explain both the solution to the current mass unemployment in OECD countries and the stagnation in policy making that causes it. It was my perception at that time that under normal conditions it might take ten years before this analysis would be accepted by 'the relevant circles', i.e. some years to write the book, some years to allow my fellow economists to digest it, and some years for the percolation into public and political discourse.

But life is not such that if a scientist decides that a book should be written, that his environment will let him do it. Instead, there was the pressing need to find a proper answer to the abuse inflicted on me, and to collect and safeguard the evidence of that abuse. Given the triad of

Voice, Exit or Compliance ('compliance' since 'loyalty' is the precondition - and the Exit and Compliance options already used by my two colleagues) I decided to Voice. I filed an appeal, and started writing a paper where I clearly stated my conclusion as a scientist that the return to full employment could be much speedier if Parliament would have an enquiry in the policy making process. Not quite to my surprise, I saw myself moved to a separate room in April 1990, and my paper was blocked from circulation. Only after some trouble it was allowed to appear as an internal note Colignatus (1990ac), but was further blocked from internal discussion and eventual publication. And I was finally fired in October 1991. And neither quite to my surprise, the courts allowed the directorate to do all this. The court deemed it an abuse of power that the directorate had moved me to a separate room, but the dismissal was deemed acceptable. The legal position of a scientist within the government is not that strong, the popular stories to the contrary.

These lines clarify that this book has not been written under the conditions that benefit science. I have been mauled by the bureaucracy, I have been on the run from one short temporary job to another, always job hunting, a longer while unemployed and in dire financial straights. But I was happy that I had kept my integrity, and it was a joy to occasionally read some economics again and to write a piece of the analysis. I published a collection in 1992 and another collection in 1994. I discovered *Mathematica*, January 1993, and there was hope again. The internet became accessible to me, and I was able to enter my papers in the Economics Working Papers Archive (EconWPA) at the Washington University in St. Louis.

One factor that caused a shift in the plan of the book was that I no longer had the resources of the CPB at my disposal. No database, no model, no easy access to the literature, no participation in professional discussion, and no professional position that would give easier access to the other research institutes and organisations like the OECD, World Bank or IMF. It was curious, to say the least, not to have access to the model that I had helped designing and that I in fact normally maintained and had sitting at my computer. My situation caused me to rethink methodology. What could I prove, if I did not have the means that I had grown accustomed to? But by 1991 I had solved that problem and life became a bit more agreeable. But of course, it took longer, much longer, to work it all out.

Please be aware that it was not all misery and gloom. Over these 15 years I could go to 7 Dutch economics 'research days', visit 3 European Economic Association congresses and visit the occasional colleague and professor. There are also nice events that happen when you approach people with some novel ideas. I still enjoy the tour of Cambridge that Richard Layard gave to Assar Lindbeck and me; this was in 1991 when Layard, Nickell & Jackman (1991), "Unemployment", had just appeared. Mr. Emile van Lennep, former head of the OECD, then retired as Minister of State but still at the Dutch Treasury, agreed to talk to me, and afterwards helped me to get an interview at the US Treasury in the Summer of 1993: but to no avail, the person that I talked to was too absorbed by the Clinton Health Plan, and said something like 'Well, if Europe wants to adapt its constitution, be my guest'. It also appeared that the OECD did not have information on tax exemption in the member states. It was worth a try, and fun to do. I also have had great fun developing my "Economics Pack", applications for *Mathematica*. It is good software, it brings me in contact with interesting economists all over the world, and of course it includes, amongst other projects, also some of the material of this book - which should do something for the spread of the ideas as well.

So now the book is here. It collects and combines the various articles written since 1989, and gives the final twists that come from integration.

Note that I as a researcher claim 'novel results', while I at the same time say, at the risk of an inconsistency, that '*either* governments already knew how to solve unemployment and then neglected human suffering, *or* they could find out how to do it and then at least failed in co-ordination'. 'Novelty' and 'it was known' are at risk of being inconsistent. I have removed this risk (a) by making the novel results available since 1990, which was 10 years ago at the first edition of this book in 2000 and now in 2005 is 15 years ago, (b) by gathering information about the abuse afflicted on myself, and making this information available to others, and (c) by showing that important parts of the whole analysis (without my contributions) were already known before. Cohen Stuart in 1889, and policy makers in the 1950s already knew that tax exemption should be at the subsistence level. One does not really need a CWIRU concept to see that. While this was known, my

novel contribution then has become to analyse the 'loss' of this information as an institutional and Public Choice problem - or bad co-ordination between the Treasury and the Ministry of Labour. As a 'novel contribution' it has its limits - though in the 1980s it took me a decade of eliminating other causes before I discovered, and indeed with surprise, how dumb and insensitive these bureaucrats can be. But other novel insights have a more enduring character, and that is a relief.

Yes, some friends have advised not to tell all of this, others have advised to do so. I once entertained the thought to skip my Dutch examples, and concentrate on, say, the US. This might enhance the argument, since readers would be less inclined to think that I am partial to the argument. I hesitated doing that, since (a) I am not partial anyway, and (b) it would eliminate that very example of the current structural deficiencies in economic policy making.

What is new in this analysis ?

'New' is taken here in comparison to others, and thus includes points also made in my earlier publications on this analysis. New is:

- 1) clarification that if you don't index subsistence for average income, then you create poverty
- 2) clarification that minimum 'income' is not an 'income' but a mechanism (with multiplier)
- 3) the concept of the Tax Void
- 4) the dynamic marginal tax rate, and its relation to labour supply and macro-economics
- 5) these explanations for the shift of the Phillipscurve:
 - a) by the minimum wage and tax void, or poverty
 - i) directly, and caused by differential indexation of exemption and subsistence
 - ii) indirectly, by the crowding out effect, shifting of the tax burden etc.
 - b) by misguided macro-economic policy (not understanding taxes, fighting inflation with the wrong means)
- 6) clarification that 'there is no poverty trap'
- 7) suggestion for a simple nonlinear tax function, clarification for households
- 8) suggestion of a possibly 'dromedary shaped' labour supply
- 9) clarification on the concept of a 'free lunch'
- 10) proper definitions of risk and uncertainty
- 11) clarification for the impact of the minimum wage (tax void) on sheltered and exposed sectors
- 12) clarification on the Definition & Reality methodology
- 13) the theorem on the possibility of full employment, via the reduced form
- 14) integration of deontic logic with preference theory
- 15) the proper interpretation of Arrow's Theorem
- 16) the Borda Fixed Point method
- 17) the theorem on the possibility of co-ordination, via the reduced form
- 18) description of actual bureaucratic processes on these subjects, so that we better understand how the Great Stagflation came about (comes about)
- 19) the concept of the Economic Supreme Court, in its political and historical relation to both the Trias Politica and economic science, and a draft constitutional amendment to start thinking about
- 20) clarification of the moral imperative with regards to Russia and Eastern Europe
- 21) positioning this analysis with respect to a standard small macro model and the work of other authors.

Abstract

The prime conclusion of this book is that Western democracies are well-advised to install an **Economic Supreme Court**. This volume includes a draft constitutional amendment that shows that such a measure can indeed enhance democracy.

The fundamental structure for current policy making in a democracy is

Montesquieu's model of the separation of powers, i.e. the Legislative, Executive and Judicial branches that form the "Trias Politica". It appears that this structure still allows room for economic policy making that is detrimental to the life and liberty of the citizens of the state. The key issue appears to be that there is no independent protection of the quality of information. With all the social, economic and political interests involved, the current process of economic policy making allows the current constitutional powers too much room for distortion of the information. Economic theory then suggests the creation of an Economic Supreme Court as a separate constitutional power with the task of the scientific management of information. The legislative and executive branches would still decide on policy targets and policy execution, but they would lose the power to interfere with the scientific handling of information. This argument can be developed purely theoretically. The economic experience of the last century shows that the argument is also practically relevant.

Political Economy as a science has the general objective of explaining and advising the management of the state. Two hallmark reference points exist in the *General Theory* by Keynes (1936) and the analysis by Tinbergen (1956) on the principles and design of economic policy making. These studies show that the state can be subject to long periods of economic recession and even depression if not properly managed. Since the end of World War II, application of these ideas has allowed spectacular economic growth while depression has been prevented indeed. However, the economic record especially since the 1970s is mixed, with issues like stagflation, problems with the welfare state and continued poverty and also with the issue of sustainable development and protection of the environment. It can be shown beyond reasonable doubt that economic policy has been detrimental to the life and liberty of many of its citizens while this came about by mismanagement of the available information.

An element of self-reference arises when economic policy uses economic theory itself, so that theory should include theory. Increasingly over the years, economic theory has gotten a role in the management of the state, and developments in the real economy cannot be properly understood without reference to the economic ideas adopted for national policy. Since economic theories give conflicting advice, part of the management problem of the state is the selection of the appropriate theory, and this selection is more and more the key management problem. At the next higher level of abstraction, the process of selection becomes the focus of attention. The problem then becomes what that process is, what criteria of transparency and fairness it satisfies, and how the process itself affects the economy. The current structure gives too much room for political elites and bureaucrats to neglect the basic rights of the population at large. The criterion to judge an optimal improvement in the structure of economic policy making is not just economic growth but can be taken in the concept of democracy itself and the citizen's right to be properly informed.

Keynes's *General Theory* can be generalised even further by the inclusion of endogenous government in the model, and in particular economic policy making itself as that is guided by economic theory. Keynes clearly anticipated this line of thinking, where he wrote: "Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back." (GT:383) The new point now is that this does not only concern "practical men" but economists themselves too, and the whole institutional framework for economic advice. When economic policy making itself is part of the model, economic stagnation can be explained as stagnation in that realm, and the solution for economic stagnation can be found there too.

OECD nations had full employment in the 1950-1970 period, and Japan and Sweden had it much longer. So it would seem that full employment at least is feasible. However, after the period of full employment, all nations showed the phenomenon of stagflation, which is a worsening trade-off between inflation and unemployment (represented as the shift of the Phillipscurve), frequently associated with stagnating growth. Instead of full employment and a steady growth of welfare, OECD nations suffered a long period of insecurity from 1970-2005.

This volume analyses the different periods and finds the likely cause. The fundamental cause is the common Trias Politica structure of economic decision making that all OECD nations share over time and space. At an operational level, stagflation can be explained by the tax policy that OECD nations have in common as well.

The common tax policy is based upon a particular economic theory that has become the conventional economic view of our time. This conventional theory sees tax as a penalty on work effort and holds that statutory marginal rates have major disincentive effects. Marginal tax rates are a useful penalty on (inflationary) wage claims in wage-bargaining, but the conventional view is that the disincentive effect dominates. Following this theory, policy has been to reduce marginal rates at the cost of lower exemption. Another measure was to switch from the income tax to a Value Added Tax (VAT) that has no exemption at all.

The common tax policy has static and dynamic components. Statically, exemption is low. Dynamically, there is the tendency of reducing exemption even further. The low and ever lower exemption causes rising tax levels and hence either poverty or higher labour costs in the lower wage brackets, causing unemployment, and causing higher taxes to pay for the benefits. What is crucially wrong about current policies is the phenomenon of differential indexation. Exemption is indexed on inflation, while subsistence, by social psychological causes, rises with inflation and real income. This differential indexation causes ever increasing problems with poverty and unemployment.

The OECD countries have been pursuing this policy now for more than three decades, and rather little is being achieved. It is time to seriously wonder whether policy is on the right track. This book shows where the conventional theory goes wrong.

A first feature is the **tax void**. The tax void is the region of productivity and income between the net minimum wage and the gross minimum wage. The difference between net and gross is normally called a 'tax wedge', but this term is inadequate since a wedge is commonly thought to apply *at* a particular level while the void is a *range*. The income range between the net and gross minimum wage is a void since there are official tax statutes for that range but no true revenues. People are not allowed to work below the gross minimum and thus cannot pay taxes there (that is, for full timers). Ideally, as in the 1950s, the net minimum should be equal to the gross minimum so that the void is zero, and so that such workers can start earning their own living without paying taxes. Because of the current practices for tax indexation, the tax void has grown over time so that the gross minimum wage has risen much more than the net minimum wage. By result, more and more low wage workers are subject to that excessively high gross minimum and are effectively removed from the labour market. The shift of the Phillipscurve can be explained partly by this growing component of minimum wage unemployment. This analysis also points to a solution. For the tax void, no taxes are collected (on full timers), thus abolishing such void taxes will not cost anything. The argument is not quite that lowering the minimum wage will create new job opportunities, but rather that not raising the gross wage costs so excessively would not have destroyed the opportunities that already existed. This argument designs an experiment at no cost.

The tax void causes needless unemployment for millions of people all over the world and its plain bureaucratic stupidity is a blow to naive ideas about democracy (that the current democratic structure would be adequate and provide adequate information).

The second feature in the new analysis concerns the **dynamic marginal tax rate**. Marginal tax rates are important - since economic theory indeed assumes optimising economic agents - but these marginal rates should be properly computed. This analysis not only considers the partial effect, assuming other things constant, but rather considers the total effect that includes all simultaneous changes. A change in a marginal tax rate is usually accompanied by a change in exemption, and both generally happen at the same time, either annually or in computer policy simulations. Private and national income change at the same time too. Individuals are frequently aware that their own fortunes are linked to the fortunes of the national economy and they will be sensitive to their relative position in the distribution of income. Work incentives may be more guided by the average tax rate rather than the statutory marginal tax rate. Hence, 'incentives' may not be a convincing argument against higher marginal tax rates, even though policy makers have been advancing that argument forcefully. That, in fact, the converse is true, fits perfectly with the experience of the last decades. The reduction of the statutory marginal rates, as the policy was, appears to have had little incentive effects, since the true incentive effect depends more on the average tax over time, and this average has remained high due to the problems of unemployment, poverty and lower growth.

This book concludes that macro-economic policies in OECD nations have not countered stagflation but have actually increased it. Current policies add to labour costs, reduce incentives, fuel forward shifting of the tax burden, and worsen the trade-off between inflation and unemployment.

The new analysis points directly to a policy that will be successful and that will allow a return to full employment under stable prices like in the the 1950s. If exemption is put at subsistence, then jobs can be created at the low end of the labour market, which would save benefits and reduce average taxes, which again would increase incentives. The alternative structure and policy would also be beneficial for inflation. If low productivity labour has a stronger position in the labour market, then the risk of unemployment is spread more evenly, and trend-setting high productivity labour will be cautious about wage claims.

A welfare state is defined as a state that doesn't let people die and thus provides benefits for the lowly productive *anyway*. The welfare state can be run more efficiently by using those resources, instead of going into benefits, to instead reduce labour costs and to price the lowly productive into jobs. The analysis on inflation and unemployment thus results into the proposition that, since the present situation is inefficient, an improvement is possible from which everybody can benefit.

This book provides theorems in mathematical economics to prove its points. The central questions in the political economy of employment in the welfare state are: *can* one solve unemployment, does one *know* how, and does one *want* to ? The book presents a model that satisfies the stylized facts and thus serves theoretical and empirical uses.

- The first result is a possibility theorem (*can*) that there are two regimes of either full employment or unemployment.

- The second theorem explains the choice by *know* and *want* causes. Full employment results from conscious choice or chance (while lacking knowledge). Unemployment results from conscious choice or wrong co-ordination (where a Pareto optimising change is blocked only by lack of knowledge - and a lack of knowledge not by the economists but by the incompetent or insensitive policy makers).

The analysis shows mathematically that democratic goals indeed can be blocked by special interests or neglect, for example within the bureaucracy. A policy conclusion is to improve informational (planning) procedures.

The discussion of taxes, unemployment and inflation is basically just a minor point of the book. The major point of the book concerns the co-ordination problem. Western democracies apparently allow long periods like the Great Depression or the Great Stagflation that are detrimental to the economic well-being and security of large sections of their populations. Ideas of economists that point the way to recovery are only slowly accepted. Key examples are the ideas of Tinbergen and Keynes: for them it took World War II before they got listened to. Eventually, the political powers of that time accepted that they had to redesign the structure of economic policy making, and they gave more room to the scientists, but did not dare to give up their ultimate power to meddle with the information. Currently, the world faces the challenge of the growth of the world population from 6 billion people around 2000 to likely around 8 billion people around 2025. To manage this process, mankind would benefit from a structure of economic decision making that is both democratic and that respects the citizen's right to know.

Literature

EWP references are to the Economics Working Papers Archive at the Washington University at St. Louis: <http://econwpa.wustl.edu>. See also <http://www.dataweb.nl/~cool>.

Note: Colignatus is the name of Thomas Cool in science. Some archives may not recognize that name.

ACB = Albeda Conference Book (1990), Concept, WRR, The Hague

AD Tijdsdocument (2002), "Fortuyn. De opkomst, de moord, de nasleep", Het Spectrum
Adriaansens, H. (1990), 'Naar een aangepaste verzorgingsstaat', Intermediair April 20, p17-23, adapted version 354th Dies, University of Utrecht

Albeda, W. (1990), "Nieuwe studie naar functioneren SER is wenselijk", De Volkskrant 16/10/90

Ancot & Hughes Hallet (1984), "Establishing public preferences for coalition government: an empirical study in economic planning behavior", De Economist, p153-170

Aoki (1990), "Towards an economic model of the Japanese firm", JEL 28, pp 1-27

Aronson, E. (1972, 1992a), "The social animal", Freeman, sixth edition 1992

Aronson, E. (ed) (1973, 1992b), Readings about The Social Animal", Freeman, sixth

edition 1992

- Arrow, K. & T. Scitovsky eds. (1969), "Readings in welfare economics", Allen & Unwin
- Arrow, K. & F. Hahn (1971), "General competitive analysis", North Holland
- Arrow, K. (1950), "A difficulty in the concept of social welfare", *J. of political economy*, pp328-346, reprinted in Arrow & Scitovsky (1969) pp147-168
- Arrow, K. (1951, 1963), "Social choice and individual values", J. Wiley
- Ash, T.G. (2004), *NRC Handelsblad*, April 29 (Dutch translation)
- Ashenfelter, O. & R. Layard eds. (1986), "Handbook of labour economics", North Holland
- Auerbach & Kotlikoff (1987), "Dynamic fiscal policy", Cambridge
- Ayer, A. (1936, 1978), "Language, truth and logic", Pelican
- Bakhoven, A. (1988), "Een marktgerichte oplossing voor het werkloosheidsprobleem", *Economisch Statistische Berichten* January 13
- Barndorf-Nielsen, Gill and Jupp (1998), "An introduction to quantum statistics" - www.math.uu.nl/people/gill/
- Barro, R.J. & X. Sala-i-Martin (1995), "Economic growth", McGraw-Hill, NY 1995
- Barro, R.J. (1996), "Getting it right", MIT
- Barrow, J.D. (1998), "Impossibility. The limits of science and the science of limits", Vintage
- Barten, A. (1988), "The history of Dutch macroeconomic modelling (1936-1986)", p39-98 (on Tinbergen p39-55), in Driehuis, Fase & Den Hartog (1988), "Challenges for macroeconomic modelling", North-Holland
- Beckerman, W. (1999), "Technical progress, finite resources, and intergenerational justice", in Van Ierland (1999).
- Beenstock and associates (1987), "Work, welfare and taxation", Allen & Unwin
- Begg, D., S. Fischer & R. Dornbusch (1984, 1997), "Economics", McGraw-Hill
- Beld, C.A. van den (1987), "Het Centraal Planbureau, un peu d'histoire", pp 213—225, in Knoester ed. (1987)
- Bellman, R. (1968), "Some vista's of modern mathematics", University of Kentucky Press
- Berg, R. van den (2004), "Briljant bedrog", *NRC-Handelsblad* December 4, wetenschapsbijlage
- Bergeijk, P. van (1994) "Op zoek naar een gratis lunch", *ESB* 9-11-1994, pp1013-1017 ("In search of a free lunch") (Dutch)
- Bergeijk, P. van, c.s. (1997), "Economic science and practice", Edward Elgar
- Bernstein (1992), "Capital ideas", The Free Press
- Bernstein (1996), "Against the gods", Wiley
- Besseling, P. & A. Brandsma (1988), "Forecasting the world economy 1988— 1992", Occasional Paper 43, CPB
- Blanchard, O. & S. Fischer (1989), "Lectures on macroeconomics", MIT
- Blanchard, O. (1999), "What do we know about macroeconomics that Fisher and Wicksell did not?", Tinbergen lecture (KVS, Holland), MIT
- Blaug, M. (1988), "Great Economists since Keynes. An introduction to the lives & works of one hundred modern economists", Harvester Wheatsheaf 1985, reprinted 1988
- Bochenski (1956, 1970), "A history of formal logic", 2nd edition, Chelsea
- Bochove, van, e.a. (1990), "Een opdracht, geeft niet hoe en met wie", Ministerie van Sociale Zaken en Werkgelegenheid, The Hague
- Borjas, G. (1996), "Labour economics", McGraw-Hill
- Boumans, M. (1992), "A case of limited physics transfer", Tinbergen Institute Research Series 38, Amsterdam
- Bovenberg, A.L. & F. van der Ploeg (1994), "Effects of the tax and benefit system on wage formation and unemployment", Mimeo KUB April
- Bovenberg A.L., J. J. Graafland and R.A. de Mooij (1998), "Tax Reform and the Dutch Labor Market: An Applied General Equilibrium Approach", Research Memorandum 143, Central Planning Bureau
- Bovenberg, A.L. and J.J. Graafland, R.A. de Mooij (2000), "Tax reform and the Dutch labor market: an applied general equilibrium approach", *J. of Public Economics* 78, 193-214
- Brittan, S. (1990), "New roads to jobs", *Financial Times* October 18
- Broeder, G. den (1989), "Alternatieve heffingsgrondslagen voor de sociale zekerheid, Micro-, meso- en macro-economische effecten", Magnana Mu Publishing & Research, & No 17 Commissie Onderzoek Sociale Zekerheid, Ministerie van Sociale Zaken en Werkgelegenheid
- Broer, P., N. Draper, F. Huizinga (1999), "The equilibrium rate of unemployment in the Netherlands", CPB research memorandum 156, The Hague
- Bron, J. (1989), "Creatie van werk", 100, Den Haag
- Bruno, M. & J. Sachs (1985), "Economics of worldwide stagflation", Blackwell
- Bruno, M. (1990), "Economic analysis and the political economy of policy formation", *European Economic Review* 34 273-301
- Buitenhuis, P. (1989), "The great war of words. Literature as propaganda 1914-18 and after", Batsford
- Cavalli-Sforza, L.L. (2000), "Genes, peoples and languages", Penguin
- Centraal Bureau voor de Statistiek (1991), "Inkomen en vermogen", *Sociaal Economische Maandstatistiek* 91/2, p44-52
- Centraal Bureau voor de Statistiek (1994), "Comparability of the sector General Government in the National Accounts", National Accounts NA-066
- Central Planning bureau (1989b), "Macro-economische effecten van de verkiezingsprogramma's 1990-1994 van CDA, PvdA, VVD en D66", werkdocument 32
- Central Planning bureau (1973, 80, 86, 88), "Centraal Economisch Plan", The Hague
- Central Planning bureau (1988), "Gevolgen verlaging minimumloonkosten, een verkenning", werkdocument 25
- Central Planning bureau (1989a), "Collectieve uitgaven, tekortreductie en lastenverlichting 1990-1994: een indicatie van de beleidsruimte", werkdocument 27
- Central Planning Bureau (1990), "Athena", Monograph 30, The Hague
- Central Planning Bureau (1991), "Centraal Economisch Plan", SDU
- Central Planning Bureau (1992a), "Scanning the future", SDU, The Hague

- Central Planning Bureau (1992b), "Nederland in drievoud", SDU, The Hague ("Netherlands in Triplo")
- CEPS (1990), "European labour markets: a long-run view", by Bean, Bernholz, Danthine, Malinvaud; CEPS paper 46, Brussels
- Cnossen S. & C. van Ewijk (1995), "Introduction", *De Economist*, Vol 143, No 2 (May 1995), p107
- Coase R. (1994), "Essays on economics and economists", Chicago
- Colander, D, & A.W. Coats (eds) (1989), "The spread of economic ideas", Cambridge
- Colignatus & Tinbergen (1991), "What might the Soviet Union learn from the OECD countries in economics and politics?", unpublished
- Colignatus (1989), "Neoklassieke knelpunten voor de Nederlandse economie voor de ontwikkeling op langere termijn", Central Planning Bureau III/90/20, The Hague. (In Dutch.) Included in Colignatus (1992b)
- Colignatus (1990a), "After 20 years of mass unemployment; Why we might wish for a parliamentary inquiry", Central Planning Bureau III/90/38, The Hague. Ecozoek 1991 and included in Colignatus (1992b)
- Colignatus (1990b), "Opmerkingen over de loonvergelijking in lange termijn perspectief", CPB internal note III-5
- Colignatus (1990c), "Why a social welfare (meta) function *does* exit: The Arrow Impossibility Theorem for Social Choice resolved, A better analysis suggested," internal note Central Planning Bureau, The Hague, reprinted in Colignatus (1992b) pp57-104
- Colignatus (1991), "Eenvoud niet alleen via prioriteitsstelling", CPB internal note III-15
- Colignatus (1992a), "On the reasonableness and the moral desirability of the conditions of Arrow's Theorem", published in Colignatus (1992b) pp273-285
- Colignatus (1992b), "Definition and Reality in the general theory of political economy; Some background papers 1989-1992", ISBN 905518-207-9, Magnana Mu Publishing and Research, Rotterdam
- Colignatus (1994a), "Tax structure, inflation and unemployment", Magana Mu Publishing & Research, Rotterdam, ewp-mac/9508002
- Colignatus (1994b), "Trias Politica & Central Planning Bureau", Samuel van Houten Genootschap, The Hague, ISBN 90-802263-1-9
- Colignatus (1995a), "On the political economy of employment in the welfare state", improved from the version included in Colignatus (1992b), ewp-mac/9509001
- Colignatus (1995b), "How a dead wrong OECD tax policy causes mass unemployment. An explanation using data for Holland 1950-1995", ewp-mac/9508003
- Colignatus (1995c), "Individual labour supply: A suggestion", ewp-lab/9509001
- Colignatus (1995d), "Belastingstructuur, inflatie en werkloosheid", in NAD/CBS (1996) "Nederlandse Arbeidsmarktdag 1995, congres rapport", pp 173-188
- Colignatus (1995e), "Economics programs written in *Mathematica*", ewp-prog/9508001
- Colignatus (1996a), "Unemployment solved ! A breakthrough in economic analysis", ewp-get/9604002
- Colignatus (1996b), "A constitutional amendment for an Economic Supreme Court", ewp-get/9604003
- Colignatus (1996c), "Enable Russia to help itself", econwpa get/9604004
- Colignatus (1996d), "An institutional explanation of structural unemployment of low income labour," Presentation for the 7th Research Day of the Social Sciences, Amsterdam, ewp-oth/9605001
- Colignatus (1996e), "Dynamic curvature of the tax wedge", ewp-pe/9604001
- Colignatus (1996f), "On the nature and significance of a free lunch", ewp-get/9607003
- Colignatus (1996g), "Differential impact of the minimum wage on exposed and sheltered sectors", ewp-get/9608001
- Colignatus (1997a), "Unemployment Solved: An answer to Krugman, Phelps, Ormerod and Heilbroner", ewp-get/9704002
- Colignatus (1997b) "The solution to Arrow's difficulty in social welfare", ewp-get/9707001
- Colignatus (1997c), "The dynamic marginal tax rate", ewp-get/9708002
- Colignatus (1998a), "Will the West repeat Versailles?", ewp-get/9808002
- Colignatus (1998b), see Hulst (1998)
- Colignatus (1998c), "On the paradox of efficiency improvement at the micro level and Productivity Slowdown at the macro level: The case of Efficient Inventory Control", ewp-get/9805003
- Colignatus (1999), "The Economics Pack, Applications for *Mathematica*", Scheveningen, JEL-99-0820, ISBN 90-804774-1-9
- Colignatus (1999a), "Proper definitions for risk and uncertainty", EconWPA ewp-get/9902002, Internet
- Colignatus (2000), "Definition & Reality in the General Theory of Political Economy", First Edition, March & June 2000, ISBN 90-802263-2-7
- Colignatus (2001), "Voting theory for democracy", Thomas Cool Consultancy & Econometrics, ISBN 90-804774-3-5
- Colignatus (2002), "Without time, no morality", ewp-get/0202003
- Colignatus (2003), "On the value of life", ewp-pe/0310003
- Colignatus (2004), "After 35 years of mass unemployment: An advice to boycott Holland", ewp-get/0405001
- Colignatus and H. Hulst (2003), "De ontketende kiezer", Rozenberg Publishers
- Congressional Budget Office (1977), "Recovery with inflation", reproduced by Teigen (1978) p114-120
- Cox & Alm (1999), "Myths of Rich and Poor: Why We're Better Off Than We Think", Basic Books
- Csikszentmihalyi, M. (1997), "Living well. The psychology of everyday life", Weidenfeld & Nicolson
- Cullis, J. & Ph. Jones (1992), "Public finance and public choice," McGraw-Hill
- Dahl & Lindblom (1976), "Politics, economics and welfare", Chicago
- Dahl, R (1956), "A preface to democratic theory", Chicago

- Damasio, A. (2003), "Looking for Spinoza. Joy, sorrow and the feeling brain", Harcourt
- Dasgupta, A.K. & D.W. Pearce (1980), "Cost-benefit analysis", Macmillan
- Dasgupta, P. & K.-G. Mäler (1999), "Net National Product and social well-being", forthcoming in the journal 'Environment and development economics'.
- Dasgupta, P. (1998), "Modern economics and its critics, I" at <http://www.econ.cam.ac.uk/faculty/dasgupta> and "Messages from the President", EEA July 1999
- DeLong, H. (1971), "A profile of mathematical logic", Addison Wesley
- Diamond, J. (1997), "Guns, germs, and steel", Norton
- Dilnot, A. and J. McCrae (2000), "The family credit system and the working families tax credit in the United Kingdom", OECD Economic Studies 31, 2000/II, p69-84
- Doel, J. van den, and B.C.J. van Velthoven (1990), "Democratie en welvaartstheorie", Samson
- Don, F.J.H. & P. van den Berg (1990), "The Central Planning Bureau of The Netherlands — its role in the preparation of economic policy", November CPB internal note 3 (D) / 40 (1)
- Don, F.J.H. (1996), "A letter of introduction", CPB report 1996/1, The Hague
- Dopp (1969), "Formale Logik", Benziger Verlag, Einsiedeln
- Dornbusch, R. & S. Fischer (1994), "Macro economics", 6th edition, McGraw-Hill
- Drèze (1987), in Lawrence & Schultze, "Barriers to European economic growth", Brookings 1987 page 90.
- Driehuis & Van der Zwan eds. (1978), "De voorbereiding van het economisch beleid kritisch bezien", Stenfert Kroese
- Driehuis, Fase & Den Hartog eds. (1988), "Challenges for macro-economic modelling", North Holland
- Drissen & Van Winden (1990), "A general equilibrium model with endogenous government behavior - an analytical approach", Research memorandum 9005, University of Amsterdam
- Eatwell c.s. (1998), "The New Palgrave", Macmillan (entries risk, risk aversion, CAPM)
- Eijk, van (1989), "Concerted action: a remedy against persistent unemployment?". pp 62-71, in Muller & Zwezerijnen (eds), "The role of economic policy in society", Rotterdam UP
- Enden, F. van den, (1665, 1992), "Vrije politieke stellingen", Wereldbibliotheek
ESB 3739: Economisch Statistische Berichten, January 3 1990
- Ferguson, Th. (1967), "Mathematical statistics", Academic Press
- Feynman, R. (1965, 1998), "The character of physical law", MIT
- Fitoussi, J.-P. (2000), "Payroll tax reductions for the low paid", OECD Economic Studies 31, 2000/II, p115-131
- Flanning C. and D. O Mahony (1998, 2000), "The general theory of profit equilibrium. Keynes and the entrepreneur economy", MacMillan
- Freeman, R. (1996), "Why do so many young American men commit crimes and what might we do about it?", Journal of Economic Perspectives, Spring
- Friedman (1991), "Monetarist economics", Blackwell
- Galbraith, James K. (1996), "What is To be Done (about Economics)?" - taken from the Internet. This essay will appear in "Foundations of Research in Economics: How Should Economists Do Economics", S. Medema and W. Samuels (eds), Edward Elgar Publishing, June 1996, ISBN 1 85898 163 8. Details available from Publicity@elgar.co.uk. Note the discussion about this with Krugman, see <http://members.home.net/copernicus/dialogue.html>
- Galbraith, James K. (1998), "Created unequal", Free Press
- Galbraith, John K., "The nature of mass poverty", Harvard (Dutch: "Armoede", Elsevier 1979)
- Galbraith, John.K. (1977), "The age of uncertainty", Book Club Associates
- Galbraith, John.K. (1992), "The culture of contentment", Houghton Mifflin
- Gambs, J., & J. Komisar (1968), "Economics and man", Irwin
- Gelauff (1992), "Taxation, social security and the labour market", Thesis Katholieke Universiteit Tilburg
- Gelauff e.a. (1990), "Towards an analysis of tax effects on labour market and allocation, a micro/macro approach", research memorandum 68, CPB
- Gelauff, G.M.M. and J.J. Graafland (1994), "Modelling welfare state reform", North Holland
- Gill, J. and J. Gainsous, (2002), "Why does voting get so complicated? A review of theories for analyzing democratic participation", Statistical Science, Vol 17, No4, 383-404
- Gill, R. (1996), "Quantum Probability and the Impossible Coupling" - www.math.uu.nl/people/gill/
- Gill, R. (1997a), "Critique of 'Elements of quantum probability'" - idem
- Gill, R. (1997b), "Roundtable discussion on education of physicists" - idem
- Good, A. & F. Graybill (1950, 1963), "Introduction to the theory of statistics", McGraw-Hill
- Gould, S.J. (1980), "The panda's thumb", Norton
- Gould, S.J. (2000), "The living stones of Marrakech", Harmony Books
- Graafland (1990a), "Persistent unemployment, wages and hysteresis", Thesis Erasmus University
- Graafland (1990b), "Effecten van marginale belasting- en premiedruk op loonvorming", CPB internal note I/1990/41; CPB 1991 onderzoeksmemorandum no 78
- Graafland (1990c), "Insiders and outsiders in wage formation: the Dutch case", CPB - paper for the EEA Lisbon convention
- Graafland, J. & F. Huizinga (1999), "Taxes and benefits in a non-linear wage equation", De Economist, 147, p39-54
- Graafland, J.J. and A. Nibbelink (1999), "Explaining the equilibrium unemployment: A test on the historical performance of MIMIC", CPB-Report 99/4, p35-39
- Graafland, J.J. and R.A. de Mooij (1998), "MIMIC, An Applied General Equilibrium model for the Netherlands", CPB-report 98-3, p27-31

- Grafstein, R. (1992), "Institutional realism. Social and political constraints on rational actors", Yale
- Grandmont (1983), "Money and value", Cambridge UP
- Groot, H.de & H. Keuzenkamp (1995), "Groeï en convergentie", Economisch Statistische Berichten 28-6-1995 p 615
- Guépin, J.P. (1985), "De beschaving", Bert Bakker
- Guépin, J.P. (1994), "Het verschil van mening", Ambo
- Hadjimichalakis, M. (1984), "The Federal Reserve, money, and interest rates", Praeger
- Hall, R.E. (ed) (1982), "Inflation: causes and effects", NBER
- Hansen & Clemence (1953), "Readings in business cycles and national income", Allen and Unwin
- Hartog (1989), "Distribution policies in the Netherlands", in Muller & Zwezerijnen (1989) p17-46
- Hartog, Den, e.a. ed. (1984), "Toegepaste economie, grenzen en mogelijkheden", CPB
- Hayek, edited by Nishiyama & Leube (1984), "The essence of Hayek", Hoover
- Hebden, J. (1983), "Applications of econometrics", Philip Allen
- Heilbroner, R. & W. Milberg (1995), "The crisis of vision in modern economic thought", CUP
- Heilbroner, R. (1953), "The worldly philosophers. The lives, times and ideas of the great economic thinkers", Simon and Shuster, reprint 1986
- Helliwell (1988), "Comparative macroeconomics of stagflation", JEL XXVI March pp 1-28
- Hendry, D. (1995), "Dynamic econometrics", Oxford
- Hersoug, T. (1984), "Union wage response to tax changes", OEP 36, p 37-51
- Hersoug, T. and K.J. Kjaer, A. Rodseth (1986), "Wages, taxes and the utility-maximizing trade union: a confrontation on Norwegian data", OEP 38, 37-51
- Hicks (1937), "Mr. Keynes and the 'classics'", *Econometrica* vol v no 2 April, reproduced in "Critical essays in monetary theory", Oxford 1967 and Hicks (1982)
- Hicks (1981), "Collected essays on economic theory, volume I; Wealth and welfare", Blackwell
- Hicks (1982), "Collected essays on economic theory, volume II; Money, interest & wages", Blackwell
- Hicks (1983), "Collected essays on economic theory, volume III; Classics and moderns", Blackwell
- Hicks (1989), "A market theory of money", Oxford
- Hillier, F. & G. Lieberman (1967), "Introduction to operations research", Holden Day
- Hofstra (1975), "Inkomstenbelasting", Kluwer
- Hornby (1985), "Oxford advanced learner's dictionary of current English", Oxford
- Hotz, V.J. and J.K. Scholz (2000), "Not perfect, but still pretty good: The EITC and other policies to support the US low-wage labour market", *OECD Economic Studies* 31, 2000/II, p25-42
- Huetting, R. (1980), "New scarcity and economic growth", North Holland
- Hulst, H. & A. Hulst with collaboration of Th. Colignatus, (1998), "Werkloosheid en armoede, de oplossing die werkt", Thesis Publishers 1998, ISBN-90-5179-447-X ("Unemployment and poverty, the solution that works")
- Hum & Simpson (1991), "Income maintenance, work effort and the Canadian Mincome experiment", A study prepared for the Economic Council of Canada, Canada Communication Group - Publishing, Ottawa
- Ierland, E. van (ed) (cs) (1999), "International symposium Valuation of Nature and Environment", Draft papers
- Ierland, E. van, J. van der Straaten en H. Vollebergh (eds) (2001), "Economic growth and valuation of the environment: a debate", Edward Elgar
- Jacobs, D. (1996), "De Amerikaans 'crime machine'", *ESB* June 26
- Johansen (1969), "An examination of the relevance of Kenneth Arrow's general possibility theorem for economic planning", *Economics of planning* 9, pp5-41
- Johnson, H. G. (1975), "On economics and society", Chicago, paperback 1982
- Johnston, J. (1963, 1972), "Econometric methods", McGraw-Hill
- Jones, H (1975), "An introduction to modern theories of economic growth", Thomas Nelson & Sons
- Jongen, E.L.W. and J. J. Graafland (1998), "Vouchers for the long-term unemployed: a simulation analysis with MIMIC", Research Memorandum 139, Central Planning Bureau, The Hague
- Jorgenson, D. (1990), "Aggregate consumer behavior and the measurement of social welfare", *Econometrica* 58 no 5 pp1007-1040
- Kam, C. de, & Van Herwaarden (1989), "De Prijs van de Beschaving", Academic Service
- Kam, De & Nypels (1990), "Het stuurneer loopt over", *Intermediair* 45
- Keizer (1990), "De Zweedse crisis", *ESB* May 9 1990
- Kennedy, D.M. (1999), "Freedom from Fear; The American people in Depression and War", Oxford
- Keuzenkamp, H. (1994), "Probability, econometrics and truth; A treatise on the foundations of econometric inference", thesis KUB, Tilburg February 25
- Keuzenkamp, H., F. van der Ploeg & A. van Soest (1991), "Vicious circles behind the dykes: Disability and unemployment in The Netherlands", KUB
- Keynes, J.M. (1919, 1971), "The economic consequences of the Peace", Macmillan
- Keynes, J.M. (1936), "The general theory of employment, interest and money", MacMillan
- Keynes, J.M. (1939), "Professor Tinbergen's method", *Economic Journal*, September, reprinted in, Hansen & Clemence (1953) with Tinbergen's reply and Keynes's final comment p330-355
- Klamer, McCloskey & Solow eds. (1988), "The consequences of economic rhetoric", CUP
- Klever, W.N.A. (1981), "Dialectisch denken. Over Plato, wiskunde en de doodstraf", Wereldvenster
- Klever, W.N.A. (1990), "Zuivere economische wetenschap", Boom
- Knegtmans, P.J. (1989), "Socialisme en democratie. De SDAP tussen klasse en natie (1929-1939)", IISG

- Knoester ed. (1987), "Lessen uit het verleden", Stenfert Kroese
- Koopmans, L. (1975), "Overheidsfinanciën", Stenfert Kroese
- Korliras, P. & R. Thorn (ed) (1979), "Modern macroeconomics", Harper & Row
- Krugman (1999a), "Thinking about the liquidity trap", his website
- Krugman, P. (1993), "How I work", the American Economic Review (1993), nr 2, p25-31, reprinted in Rutten, F. (1996), "KVS, Jaarboek 1995/96", ESB Rotterdam p221-231
- Krugman, P. (1994a), "The Age of diminished expectations", 4th revised and updated edition, MIT
- Krugman, P. (1994b), "Peddling prosperity", Norton
- Krugman, P. (1995), "Development, geography and economic theory", MIT
- Krugman, P. (1996a), "Pop internationalism", MIT
- Krugman, P. (1996b), "The self-organizing economy", Blackwell
- Krugman, P. (1999), "The return of depression economics", Norton
- Krugman, P. (2001), "Fuzzy math. The essential guide to the Bush tax plan", Norton
- Krugman, P. (2003), "The great unraveling. Losing our way in the new century", Norton
- Kuhn, Th. (1962, 1994), "The structure of scientific revolutions", Chicago
- Kuipers & Van Ees (1990), "Macro-economische theorie en economische politiek", ESB 3714 June 6, pp 32-43
- Laidler (1990), "Hicks and the classics", J. of Monetary Ec. 25 pp 481-489
- Lakatos & Musgrave eds. (1970), "Criticism and the growth of knowledge", CUP
- Lambert, P.J. (1985), "Advanced mathematics for economists", Blackwell
- Layard, Nickell & Jackman (1991), "Unemployment", Oxford
- Layard, R. (1988). "How to beat unemployment", Oxford UP
- Leontief (1990), "Some Soviet lessons". Challenge Sept-Oct. pp 14-15
- Lindbeck & Snower (1988). "The Insider-Outsider theory of employment and unemployment", MIT
- Lomborg, B. (2001), "The skeptical environmentalist. Measuring the real state of the world", Cambridge
- Lucas, R. & Th. Sargent (ed) (1981), "Rational expectations and econometric practice, Vol. 1", Minnesota
- Luce & Raiffa (1957), "Games & decisions", J. Wiley
- Luenberger, D. (1998), "Investment science", Oxford
- Mankiw, N.G. (1992), "Macroeconomics", Worth Publishers
- Mankiw, N.G. (1998), "Principles of economics", The Dryden Press
- Marsden, M. (1995), "The impact of industrial relations practices on employment and unemployment", OECD Jobs Study Working Papers Series no 3
- Marshall, A. (1890, 1947), "Principles of economics", Macmillan
- Mas-colell, A., M. Whinston and J. Green (1995), "Microeconomic theory", Oxford
- McCloskey, D.N. (1989), "Knowledge and persuasion in economics", Cambridge
- Meade, J.E. (1975), "The intelligent radical's guide to economic policy", George Allen & Unwin
- Meade, J.E. (1985), "Wage-fixing revisited", IEA occasional paper 72
- Meade, J.E., Committee chaired by, (1978), "The structure and reform of direct taxation", IFS, George Allen & Unwin (in particular p308-316)
- Memories van Toelichting, "Wijziging van de Wet minimumloon en minimumvakantiebijslag", Tweede Kamer 1988-1989, nr. 21014 (zgn. "WAM met beleidsmatige aanpassing"), en "Wijziging van de Wet minimumloon en minimumvakantiebijslag", Tweede Kamer 1990-1991, nr. 22012, (zgn. "Wet Koppeling met Afwijkingsmogelijkheid").
- Minford & Ashton (1993), "The poverty trap and the Laffer curve: What can the GHS tell us?", in Knoester, "Taxation in the United States and Europe", St. Martin's press
- Minford & Rastogi (1989). "A new classical policy programme" In Britton (ed), 'Policymaking with macroeconomic models', Gower
- Mirowski (1989), "More heat than light", Cambridge
- Montesquieu (1748), "De l'Esprit des Lois" (Spirit of the laws), internet <http://www.constitution.org/>
- Mooij, R.A. de (1999), "Taxation and employability in MIMIC", CPB-Report 99/4, p31-35
- Mueller, D. (1989), "Public Choice II", Cambridge
- Muller & Zwezerijnen eds (1989), "The role of economic policy in society", Rotterdam UP
- Muysken (1989), "Unemployment In the Netherlands: who cures? Who pays ?", Maastricht
- Nafziger, E.W. (1998), "Root of human suffering", Financial Times January 21
- Nentjes (1971), "De ontwikkeling van de economische theorie", Wolters-Noordhoff
- Neubourg, De (1990). "Unemployment and labour market flexibility: The Netherlands", ILO Geneva
- Noguchi, Asahi (1993), "General Equilibrium models", in Varian (ed), "Economic and financial modeling with Mathematica", Springer Telos 1993 pp 104-123
- OECD (1986), "An empirical analysis of changes in personal income taxes", OECD studies in taxation, Paris
- OECD (1990), "Progress in structural reform; supplement to OECD economic outlook 47", Paris
- OECD (1990). "Progress in structural reform; supplement to OECD economic outlook 47", Paris
- OECD (1994), "The OECD Jobs Study - Facts, Analysis, Strategies", Paris
- OECD (1995) "Taxation, Employment and Unemployment", OECD, Paris
- OECD (1998), "The OECD Observer", No. 213 August/September 1998, OECD Paris
- OECD (2000), "Outlook", OECD, Paris, in particular chapter 2, "Making the most of the minimum: statutory minimum wages, employment and poverty"
- OECD (2003), "Policy Brief: Disability programmes in need of reform", OECD Observer, March
- Oers, F.M., R. A. de Mooij, J. J. Graafland and J. Boone (1999), "An Earned Income Tax Credit in the Netherlands: Simulations with the MIMIC model", Research Memorandum 150, Central Planning Bureau, The Hague

- Okroi, L.J (1988), "Galbraith, Harrington, Heilbroner", Princeton
- Okun, A. (1975), "Equality and efficiency", Brookings
- Okun, A. (1981), "Prices & Quantities", Blackwell
- Okun, A. (1983), "The economist and presidential leadership", reproduced in Pechman (1983) p579-583
- Opstal, R. van (1990), "Minimumloon en werkloosheid; een empirische analyse of micro-data uit 1979 en 1985", Research memorandum 69, Centraal Planbureau
- Ormerod, P. (1994), "The death of economics", Faber & Faber
- Palley, Th. (1999), "Review: Created Unequal", Challenge, March-April p130-135
- Patinkin (1976), "Keynes' monetary thought", Duke
- Pearson, M. and S. Scarpetta (2000), "An overview: What do we know about policies to make work pay?", OECD Economic Studies 31, 2000/II, p11-24
- Pechman, J.A. (ed) (1983), "Economics for policy making. Selected essays of Arthur M. Okun", MIT
- Pechman, J.A. (ed) (1989) "The role of the economist in government. An international perspective", Harvester Wheatsheaf
- Pelkmans, J., Interview with, (1990), "Dr Jacques Pelkmans (Kroonlid): 'Analyse Is voor de SER belangrijker dan politieke invloed'" Maatschappijbelangen nr 10 Oct. Haarlem, pp 246-248
- Pen, J. (1987), "Feestbundel", ESB November 18, pp 1099-1100
- Pen, J. (1989), "De economen en de politiek: een interessante relatie", pp 113-128 in Van Brabant et al. (eds), "Openbare financiën in drievoud", Thieme Zutphen
- Pen, J., & J. Tinbergen (1977), "Naar een rechtvaardiger inkomensverdeling," Elsevier
- Phelps, E. (1994), "Structural slumps: The modern equilibrium theory of unemployment, interest and assets", Harvard UP
- Phelps, E. (1997), "A strategy for employment and growth: the failure of statism, welfarism and free markets", Rivista Italiana degli Economisti, a. II. n. 1. aprile p121-128
- Phelps, E. (2000), "The importance of inclusion and the power of job subsidies to increase it", OECD Economic Studies 31, 2000/II, p85-113
- Pikkemaat, A. (1990), "Arrow's significance for economic science in the Netherlands", De Economist 138 No 3 p235-255
- Piore (1987), "Historical perspectives and the interpretation of unemployment", JEL XXV 4 pp 1834-1850
- Ploeg, F. van der & R. de Klerk, (1992), "Overheid en markt in het maatschappelijk debat", ESB March 18 (see Colignatus (1994b:76-81))
- Postma, R. (2004), "Midden-Europa achter de schermen", Prometheus / NRC Handelsblad
- Praag, B. van & V. Halberstadt (1980), "Towards an economic theory of non-employability, a first approach", pp 211-222 in Roskamp ed. (1980), "Public Choice and Public Finance", Editions Cujas
- Quah (1993), "Galton's fallacy and tests of the convergence hypothesis", Scandinavian Journal of Econometrics, 1993 pp427-443
- Reijn, van (1989), "Van basisinkomen naar verlaging minimumloonkosten", SER-bulletin augustus/september
- Reuten, G. (1992), "Waarheid in de economie", ESB 16/12/92 pp1208-1216
- Rijken van Olst, H. (1969), "Inleiding tot de statistiek", deel I, II, III, Van Gorcum
- Roebroek (1990), "Sociale zekerheid in Nederland: Pappen en nathouden", Intermediair 41. October 12 pp 51-63
- Rostow, W. (1990), "Theorists of economic growth from David Hume to the Present", Oxford
- Rutten, F. (1989), "De betekenis van Tinbergen en Zijlstra", SLA lecture, Dutch Ministry of Economic Affairs.
- Saari, D. (2001a), "Chaotic elections", AMS, 2001, www.ams.org; or
- Saari, D. (2001b), "Decisions and Elections. Explaining the unexpected", CUP
- Samuelson, P. (1947, 1983), "Foundations of economic analysis", Harvard, enlarged edition
- Schaaijk, M. van (1983), "Loondifferentiatie en werkloosheid", ("Wage differentiation and unemployment"), Economisch Statistische Berichten September 21
- Schaaijk, M. van (1988), "Overzicht gewaarborgd", Maandschrift Economie, pp 372-378, CPB reprint no 214 ("Microtax '88")
- Schaaijk, M. van, & Verkade (1988), "Eenvoud verzekerd: Microtax 88", Central Planning Bureau OM 43, The Hague
- Schrijver (1987), "Analyse van macro-economische beleidspreferenties met behulp van optimale besturingstheorie", Research memorandum 35, CPB
- Schuyt, C. (1990), "Het suddert voort, zolang er wat te halen valt", De Volkskrant October 6, het vervolg page 9
- SCP (1990), "Sociaal en cultureel rapport 1990", Rijswijk
- Sen, A. (1986), "Social choice theory," p1073-1181 in Arrow & Intriligator eds. (1986), "Handbook of mathematical economics, Volume III", North Holland
- Sen, A. (1970), "Collective choice and social welfare", North Holland
- Sen, A. (1999a), "Development as freedom", Knopf
- Sen, A. (1999b), "The possibility of social choice", AER p349-366 (excluding literature)
- Shapiro, C. and H. Varian, (1999), "Information rules", HBS press
- Shiller, R.J. (2003), "The new financial order. Risk in the 21st century", Princeton
- Shone, R. (1998), "Economic dynamics", Cambridge
- Skidelsky, R. (1975), "The reception of the Keynesian revolution", in Milo Keynes, "Essays on John Maynard Keynes", CUP
- Skidelsky, R. (1983), "John Maynard Keynes. Hopes betrayed 1883-1920", Macmillan
- Skidelsky, R. (1992), "John Maynard Keynes. The economist as saviour 1920-1937", Macmillan
- Skidelsky, R. (2000), "John Maynard Keynes. Fighting for Britain 1937-1946", Macmillan
- Smith, A. (1759, 1984), "The theory of moral sentiments", Liberty Fund
- Smith, A. (1776, 1974), "An inquiry into the nature and causes of the wealth of nations",

- Penguin (edited and with an extensive preface by Andrew Skinner)
- Solow, R. (1976), "Down the Phillips curve with gun and camera", reproduced in Teigen (1978) p146-157
- Solow, R. (1980), "On theories of unemployment," AER Vol 70 no 1, p1-11 (AER presidential address)
- Standing, G. (1988), "Unemployment and labour market flexibility; Sweden", ILO, Geneva
- Stevens, Th. (1979), "Na prinsjesdag in de Volkskrant", Stenfert Kroese
- Siphout, H. van (1989), "Unemployment components and employment policies: a reflection on the capacities of the economy", paper for the conference "The art of full employment" Maastricht 28—30 September 1989.
- Sudgen, R. (1999), "Book review: On voting. A public choice approach. By Gordon Tullock", JEL 1715-1716 (December)
- Sulloway, F. (1996), "Born to rebel. Birth order, family dynamics, and creative lives" (Dutch: "De rebel van de familie", Prometheus 1998).
- Summers, L. (1990), "Understanding unemployment", MIT
- Swank, O. (1989). "The objectives of Democrats and Republicans In the United States, 1956—1984", Rotterdam
- Szenberg, M. (1992), "Eminent economists. Their life philosophies", Cambridge
- Tajuddin, I. (1996), "A simple measure of skewness", Statistica Neerlandica pp 362-366
- Takayama, A. (1974), "Mathematical economics", The Dryden Press
- Teigen, R. ed. (1978), "Readings in money, national income and stabilization policy", Irwin
- The Economic Journal, Volume 114, no 494, March 2004 (various papers)
- The Economist (1991), "How to make anti-poverty policies popular", April 27th, p45-46
- The Economist (1993), "Economic focus: indirect taxes", 4th December
- The Economist (1994a), "Schools Brief", Februari 19th and 26th, "Getting back to full employment", March 5th
- The Economist (1994b), "No free lunch for the jobless", August 20th 1994
- The Economist (2000), "Wim Kok, the Netherlands' modest achiever", February 19th 2000, p34
- The New Palgrave, Macmillan 1988 - see Eatwell
- Theeuwes, J. (1998), "Arbeid en belastingen", in Praeadvies van de Kon. Ver. voor de Staathuishoudkunde 1988, "Belastingheffing en belastinghervorming", Stenfert Kroese
- Theil, H. (1971), "Principles of econometrics", John Wiley
- Throgmorton (1991), "The rhetorics of policy analysis", Policy Sciences 24 p153-179
- Tiger, L. (1992), "The pursuit of pleasure", Little, Brown & Co.
- Tinbergen, J. (1956), "Economic policy: principles and design", North-Holland
- Tinbergen, J. (1985), "Production, income and welfare: the search for an optimal social order", Weatsheaf books, Harvester press
- Tintner, G. (1968), "Methodology of mathematical economics and econometrics", Chicago
- Tobin, J. (1972), "Inflation and unemployment", AER vol 62 March, pp1-18, reprinted in Teigen (1978), pp121-133
- Tobin, J. (1990), "On the theory of macroeconomic policy", Tinbergen Lecture, De Economist 138 pp1-14
- Tyrväinen, T. (1995), "Real wage resistance and unemployment: Multivariate analysis of cointegrating relations in 10 OECD countries", OECD Jobs Study Working Papers Series no 10
- Uno (1989), "Measurement of services in an input-output framework", North-Holland
- Varian, H. (ed) (1993), "Economic and financial modeling with Mathematica", Springer Telos
- Varian, H. (ed) (1996), "Computational economics and finance", Springer Telos
- Velthoven, B. van (1990), "The applicability of the traditional theory of economic policy", J. of Economic Surveys Vol 4 no 1
- Visscher, G. (1990), "Het enquête-recht en de botheid van een minister", Trouw 18/9/90 p11
- VN (1990): "Het grote heimwee van minister Bert de Vries", Ornstein & Van Weezel, Vrij Nederland 15 september 1990 pp 6-10
- Volkskrant (2002), "Het fenomeen Fortuyn", Volkskrant
- Waal, F.B.M. de (editor) (2001), "Tree of origin. What primate behavior can tell us about human social evolution", Harvard UP
- Wemelsfelder, "Onaardige economie", De Bussy 1964
- Williams, B. (2002), "Truth and truthfulness", Princeton
- Wilson, E.O. (1995), "Naturalist", Warner Books
- Wilson, J.Q. (1993), "The moral sense", The Free Press
- Wilson, R. and E.A.C. Crouch, (2001), "Risk-Benefit Analysis", Harvard UP
- Wolfram, S. (1992), "Mathematica", Addison-Wesley
- Wolfram, S. (1996), "Mathematica 3.0", Cambridge
- Wolfson, Commissie, "Niemand aan de kant", PvdA 1992 pag. 41 tweede kolom tweede alinea.
- Wolfson, D. (1990), "Towards a theory of subsidisation", De Economist 138, nr 2, p107-122
- Workswick, D. & J. Trevithick (eds) (1983), "Keynes and the modern world", Cambridge
- Zijlstra, J. (1956), "Economische orde en economische politiek", Stenfert Kroese
- Zoon, C. (2004), "Interview met José Saramago", Volkskrant April 30

Index

A

Acceleration, 116, 120, 121, 225
 Adriaansens, H., 311

Albeda, W., 263, 311
Alm, R., 232, 242, 243, 244, 245, 246, 314
Ancot, 311
Animal spirits, 218
Annan, K., 233
Aoki, 125, 311
Arminius, 78, 80
Aronson, E., 70, 72, 107, 298, 311
Arrow, K., 27, 31, 84, 158, 159, 160, 161, 162, 163, 164, 165, 166, 168, 169, 170, 171, 172, 173,
174, 175, 176, 180, 183, 206, 234, 278, 300, 306, 311, 313, 314, 317, 319, 320
Ash, T.G., 259
Ashenfelter, O., 96, 99, 311
Ashton, 94, 96, 318
Auerbach, A., 94, 311

B

Bacon, 17
Bakhoven, A., 206, 298, 303, 311
Balkenende, J.P., 258
Barndorf-Nielsen, 78, 311
Barro, R.J., 22, 98, 100, 110, 233, 311
Barrow, J., 71, 75, 76, 278, 279, 311
Barten, A., 15, 32, 311
Basic income, 127, 138, 272, 278
Basic insurance, 110, 127
Bean, 313
Beatrix of Orange, 279
Beckerman, W., 13, 311
Beenstock, M., 94, 311
Begg, D., 311
Beld, C.A. van den, 150, 311
Bellman, R., 224, 311
Bentham tax, 45, 49, 50, 54, 55, 93, 109, 112, 115, 128, 131, 139, 140, 141, 142, 145, 146, 147,
204
Berg, P. van den, 314
Berg, R. van den, 33, 279, 301, 311
Bergeijk, P. van, 28, 187, 312
Berlin, 3, 18, 22, 31, 35, 66, 68, 197, 260, 271, 303
Bernholz, 313
Bernstein, 197, 219, 312
Besseling, P., 312
Blair, T., 56, 258, 259
Blanchard, O., 13, 28, 40, 94, 312
Blaug, M., 276, 312
Blinder, A., 218, 288
Bochenski, 82, 312
Bochove, van, 312
Booker, C., 259
Boone, J., 97
Borda, 173, 175, 177, 178, 179, 180, 181, 183, 300, 306
Borjas, G., 41, 42, 94, 95, 97, 108, 312
Bos, W., 258
Boskin, 245
Boumans, M., 15, 312
Bovenberg, L., 312
Braband, van, 319
Brandsma, A., 312
Brittan, S., 312
Britton, 318
Broeder, G. den, 96, 264, 312
Broer, P., 37, 97, 312
Bron, J., 312
Bruno, M., 28, 30, 93, 225, 237, 312
Buchanan, 14
Buitenhuis, P., 312
Buridan, 166
Burns, A., 287
Bush, G.H.W., 284
Bush, G.W., 158, 178, 254, 302

C

Cairncross, 30
Card, D., 297
Carter, J., 237
Cavalli-Sforza, L.L., 184, 185, 301
Centraal Bureau voor de Statistiek, 43, 274, 312, 313
Central Bank, 24, 59, 92, 222, 225, 237, 238, 281
Central Planning Bureau, 13, 14, 20, 28, 32, 37, 38, 40, 43, 69, 86, 94, 96, 97, 135, 138, 139, 150,
151, 158, 172, 206, 250, 251, 252, 253, 254, 255, 260, 261, 262, 263, 264, 272, 289, 298, 302,
303, 304, 311, 312, 313, 314, 315, 316, 319, 320
CEPS, 313
Chaos, 64, 81, 85, 168, 229
China, 22, 217, 234
Chirac, J., 178
Clemence, 316, 317
Clinton, W.J., 56, 288, 289, 293, 304
Cnossen, S., 186, 187, 313
Coase, R., 13, 113, 187, 239, 313
Coats, A.W., 313
Cohen Stuart, 56, 57, 62, 109, 204, 305
Colander, D., 313
Colignatus, Th., 1, 2, 13, 26, 37, 59, 70, 72, 86, 94, 99, 129, 137, 151, 156, 159, 171, 172, 179,
181, 184, 195, 206, 212, 221, 251, 254, 255, 260, 261, 262, 275, 298, 299, 300, 301, 303, 304,

313, 314, 316, 320
Competition, 41, 58, 62, 67, 68, 72, 116, 141, 149, 185, 223, 230, 239, 240, 288, 297
Computer, 69, 78, 83, 152, 181, 209, 264, 304, 309
Condorcet, 27, 165, 166, 169, 170, 173, 177, 178, 179, 180, 183
Congress, 15, 17, 130, 219, 235, 238, 279, 284
Congressional Budget Office, 97, 314
Constitution, 3, 12, 13, 14, 16, 18, 25, 26, 29, 30, 33, 35, 68, 85, 159, 160, 161, 162, 163, 165,
167, 168, 170, 171, 172, 206, 232, 256, 260, 271, 272, 277, 279, 288, 301, 304, 306, 313, 318
Consumer Price Index, 150, 218, 245, 246, 281
Cool, Th., 2, 289, 300
Council of Economic Advisers, 13, 14, 22, 24, 25, 68, 85, 110, 208, 251, 256, 282, 283, 284, 285,
286, 287, 288, 303
Cox, W.M., 232, 242, 243, 244, 245, 246, 314
Crouch, E.A.C., 197
Crowding out, 36, 122, 123, 126, 213, 236, 305
Csikszentmihalyi, M., 184
Cullis, J., 314
CWIRU, 84, 117, 118, 119, 120, 121, 122, 128, 135, 207, 218, 299, 305

D

Dahl, R., 314
Dam, M. van, 258
Danthine, 313
Darwin, Ch., 11, 78
Dasgupta, P., 12, 218, 231
Deficit, 25, 42, 67, 87, 92, 110, 113, 280, 285, 286
Definition & Reality, 3, 83, 85, 86, 198, 212, 277, 278, 306, 313
DeLong, H., 73, 314
Delors, J., 259
Depression, 3, 14, 17, 18, 19, 23, 24, 26, 30, 31, 34, 64, 66, 67, 156, 192, 224, 299, 307, 310, 317
Dewey, J., 269
Diamond, J., 184
Differential indexation, 43, 48, 56, 57, 62, 126, 132, 145, 236, 238, 305, 308
Dilnot, A., 247
Doel, J. van den., 314
Don, F.J.H., 200, 251, 261, 314
Dopp, 314
Dornbusch, R., 13, 28, 87, 311, 314
Draper, D., 312
Drèze, J., 314
Driehuis, W., 150, 311, 315
Drissen, 207, 315
Duisenberg, W., 59, 98
Dukakis, M., 287
Dutch Disease, 149, 150
Dylan, B., 254

E

Earned Income Tax Credit, 248, 249, 250, 288, 293, 294, 295, 296, 297, 299
Eatwell, J., 196, 315, 321
Economic Supreme Court, 3, 11, 12, 14, 16, 22, 24, 25, 26, 28, 29, 31, 32, 33, 66, 72, 85, 97, 232,
234, 238, 256, 260, 264, 279, 280, 281, 288, 301, 306, 313
Economist, The, 12, 94, 130, 187, 321
Edgeworth-Bowley, 153, 189, 190, 191
Eenhoorn, 258
Ees, van, 318
Eijgenraam, C., 264
Eijk, van, 315
Eisenhower, I., 287
Enden, F. van den, 302
Epimenides, 173, 279
Equilibrium rate (ERU), 117, 118, 119
Erasmus MC, 261, 302
Erlang, 78
Euclid (geometry), 73, 75, 76, 279
Europe, 3, 18, 22, 23, 31, 35, 37, 38, 41, 45, 56, 58, 59, 60, 61, 62, 64, 66, 68, 97, 124, 125, 150,
156, 218, 220, 223, 229, 231, 234, 238, 239, 244, 246, 251, 258, 259, 260, 263, 270, 289, 303,
304, 306, 312, 313, 314, 318
Ewijk, C. van, 186, 187, 313
Executive, 3, 12, 16, 17, 25, 279, 282, 286, 287, 288, 303, 306
Exemption, 45, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 59, 62, 63, 82, 99, 108, 109, 124, 125,
126, 127, 128, 129, 130, 131, 133, 135, 137, 138, 139, 140, 141, 142, 143, 146, 202, 203, 204,
206, 215, 246, 272, 304, 305, 308, 309

F

Falsification, 72, 76, 77
Fase, M., 150, 311, 315
Federal Reserve Bank, 218, 237, 238, 281, 285, 316
Feldstein, M., 283
Ferguson, Th., 197, 315
Feynman, R., 315
Fischer, S., 13, 28, 40, 87, 94, 311, 312, 314
Fitoussi, J.-P., 247
Flanning, C., 14
Folmer, H., 264, 300
Fortuyn, W.S.P., 256, 257, 258, 259, 260, 262, 301, 302
Freeman, R., 124, 311, 315
Friedman, M., 40, 94, 121, 241, 315

G

Gainous, J., 160

Galbraith, James K., 26, 27, 98, 223, 232, 235, 236, 237, 238, 239, 240, 241, 242, 281, 315
Galbraith, John K., 260, 315, 319
Gambis, J., 267, 269, 315
Gastel, L. van, 264
Gelauff, G., 28, 94, 96, 97, 98, 135, 140, 241, 315
Gill, J., 160
Gill, R., 78, 80, 81, 194, 261, 311, 315
Gillingham, J., 259
Gladstone, 277
Globalisation, 31, 37, 42, 57, 58, 61, 62, 68, 221, 236, 239, 298
Gödel, K., 164
Gogh, Th. van, 302
Gogh, V. van, 253, 302
Gomarus, 78, 80
Gorbachev, 22
Gordon, R.J., 240, 321
Gore, A., 158, 178
Gould, S.J., 11, 86, 301, 315
Graaf, T. de, 257
Graafland, J., 14, 97, 155, 241, 315, 316
Grafstein, R., 316
Grandmont, J.-M., 14, 204, 316
Graybill, F., 315
Green, J., 165, 175, 318
Greenspan, A., 238
Groot, H.de, 99, 316
Guépin, J.P., 302

H

Hadjimichalakis, M., 237, 316
Hahn, F., 311
Halberstadt, V., 93, 320
Hall, R.E., 316
Hansen, 316, 317
Harrington, 319
Harrod, R., 19
Hartog, H. den, 150, 151, 311, 315, 316
Hayek, F., 26, 83, 232, 235, 276, 277, 278, 316
Hebden, J., 40
Heck, A., 264
Heilbronner, R., 12, 219, 220, 221, 227, 230, 231, 314, 316, 319
Heinlein, R., 186
Helliwell, 316
Hendry, D., 27, 316
Hersoug, T., 97, 155, 241, 316
Herwaarden, van, 98, 317
Hicks, J.R., 13, 14, 26, 32, 83, 93, 269, 316, 318
Hillier, F., 316
Hofstra, H., 56, 109, 316
Hornby, 193, 196, 316
Hotz, V.J., 247, 248, 249, 250
Huetting, R., 156, 218, 301, 316
Hughes Hallet, 311
Huizinga, F., 97, 155, 312, 316
Hulst, H. and A. Hulst, 252
Hulst, H. en A. Hulst, 137, 254, 261, 262, 264, 300, 301, 314, 316
Hum, 96, 317

I

Ierland, E. van, 156, 301, 311, 317
ILO, 219, 241, 318, 321
IMF, 22, 65, 304
India, 217, 218, 234
Inequality, 235, 236, 238, 239, 241, 242, 256
Inflation, 14, 18, 19, 27, 31, 36, 37, 38, 39, 40, 41, 42, 48, 49, 51, 52, 53, 55, 56, 57, 58, 59, 60, 61, 62, 63, 82, 89, 90, 91, 92, 96, 97, 104, 109, 115, 116, 117, 118, 119, 120, 121, 123, 125, 126, 127, 130, 132, 133, 139, 143, 144, 146, 198, 207, 218, 219, 223, 225, 229, 230, 237, 238, 239, 245, 272, 281, 288, 289, 299, 306, 307, 308, 309, 310, 313, 314, 316, 321
Institutions, 14, 26, 86, 126, 158, 207, 220, 232, 238, 262, 263, 270, 283, 286, 298, 305, 313, 316
Insurance, 93, 107, 110, 126, 127, 135, 238, 284, 301
Interest rate, 36, 92, 121, 223, 237, 281, 316
IS-LM, 11, 13, 14, 32, 84, 87, 89, 93

J

Jackman, R., 28, 94, 304, 318
Jacobs, D., 124, 317
Janus, 79, 80
Japan, 58, 62, 67, 69, 85, 198, 239, 307
Johansen, L., 160, 317
Johnson, H. G., 245, 317
Johnson, L.B., 245, 317
Johnston, J., 317
Jones, Ph., 314
Jongen, E.L.W., 97
Jorgenson, D., 161, 317
Jospin, 56
Judiciary, 16, 29
Jupp, 78, 311

K

Kalecki, M., 26

Kam, C. de, 98, 317
Kant, I., 163
Keizer, M., 317
Kennan, G., 68
Kennedy, D.M., 17, 19, 20, 23, 317
Keuzenkamp, H., 76, 99, 316, 317
Keynes, J.M., 3, 11, 13, 14, 15, 18, 19, 20, 26, 27, 28, 32, 33, 34, 59, 63, 66, 67, 83, 95, 96, 106, 107, 142, 156, 183, 192, 197, 208, 216, 218, 219, 224, 226, 239, 241, 268, 269, 270, 276, 277, 278, 301, 307, 310, 312, 316, 317, 319, 320, 322
Keynes, M., 19, 320
Klamer, A., 317
Klein, L., 227
Klerk, R. de, 320
Klever, W.N.A., 302
KNAW, 261
Knegtmans, P.J., 317
Knight, F., 196, 197
Knoester, A., 311, 317, 318
Köbben, A.J.F., 252
Kohl, H., 223
Kok, W., 56, 156, 256, 257, 258, 260, 262, 321
Komisar, J., 267, 269, 315
Koopmans, L., 112, 317
Korliras, P., 317
Kotlikoff, L., 94, 311
Koyck, L.M., 251
Kromhout, F., 264
Krueger, A., 297
Krugman, P., 13, 14, 27, 28, 29, 66, 67, 68, 98, 156, 192, 219, 220, 221, 222, 223, 224, 225, 227, 230, 231, 235, 236, 238, 242, 254, 255, 256, 281, 314, 315, 317
Kruidierink, 22
Kuhn, T., 78, 318
Kuipers, S., 318
Kuttner, R., 29

L

Laffer, 227, 318
Laidler, 318
Lakatos, I., 318
Lambert, P.J., 102, 318
Lawrence, 227, 314
Layard, R., 28, 41, 94, 96, 304, 311, 318
Le Bras, H., 302
Le Pen, 178, 257, 258
Le Play, F., 302
Legislative, 3, 12, 16, 279, 284, 306
Leontief, W., 318
Leube, 316
Levy, S., 264, 275
Lieberman, G., 316
Lincoln, 68
Lindbeck, A., 41, 304, 318
Lindblom, 314
Lissabon Strategy (EU), 157, 300
Lomborg, B., 301
Long, H., 23, 228
Lubbers, R., 256
Lucas, R., 27, 41, 121, 122, 208, 227, 318
Luce, 160, 318
Luenberger, D., 318

M

Madison, 113, 114, 174, 217
Magaziner, I., 98, 236
Mahony, D.O., 14
Majority, 182
Mäler, K.-G., 218, 314
Malinvaud, E., 313
Mankiw, N.G., 13, 15, 17, 27, 28, 94, 95, 216, 217, 218, 219, 237, 270, 318
Marcott, C., 34
Marginal rate, 45, 54, 55, 63, 69, 94, 96, 97, 98, 99, 126, 127, 128, 129, 137, 138, 140, 141, 142, 143, 145, 146, 147, 148, 157, 202, 203, 206, 217, 222, 223, 225, 301, 308, 309
Markowitz, H., 195
Marsden, M., 246
Marshall, A., 3, 11, 17, 33, 216, 266, 268, 318
Mas-colell, A., 175, 318
Maslow, 243
McCloskey, D.N., 184, 317, 318
McCrae, J., 247
Meade, J.E., 13, 318
Meidner, R., 150
Melkert, A., 257, 258, 262
Methodology, 3, 14, 15, 33, 70, 72, 82, 83, 85, 86, 198, 206, 212, 278, 301, 302, 304, 306
Michielsen, P., 68
Milberg, W., 219, 220, 221, 230, 316
Mill, J.S., 216, 268
Milosevic, S., 22
Minford, P., 94, 96, 318
Minimum wage, 37, 38, 41, 43, 44, 45, 46, 47, 48, 50, 52, 53, 56, 57, 58, 59, 60, 61, 69, 74, 84, 88, 99, 103, 104, 105, 106, 108, 109, 119, 120, 121, 122, 123, 124, 125, 126, 130, 131, 132, 133, 134, 135, 136, 137, 141, 145, 146, 148, 149, 151, 152, 155, 199, 200, 208, 219, 227, 236, 237, 247, 253, 262, 296, 297, 305, 306, 308, 313
Mirowski, 78, 318

Mitchell, W., 268
Monetarism, 26
Monopoly, 29, 72, 239, 281
Montesquieu, 16, 17, 21, 28, 34, 234, 270, 271, 306, 318
Mooij, R.A. de, 14, 97
Mudde, C., 258
Mueller, 28, 158, 171, 318
Muller, 315, 316, 318
Mundell, R., 15, 27, 227
Musgrave, 318
Mussolini, 258
Muysken, J., 318

N

Nádas, P., 260
Nader, R., 158, 178
Nafziger, E.W., 21, 318
NAIRU (*see* CWIRU), 84, 116, 122, 226, 227, 229, 237, 240, 241, 299
Natural rate (*see* NAIRU), 84, 121, 122, 218, 226, 241
Negative income tax (NIT), 138, 139
Nentjes, A., 318
Neubourg, C. de, 318
New Deal, 19
New Economy, 299, 300
Newton, I., 17, 175, 271
Nibbelink, A., 97
Nickell, S., 28, 41, 94, 253, 304, 318
Nieuwenhuis, A., 140
Nishiyama, 316
Nixon, R., 287
Noguchi, A., 264, 275, 319
North, R., 259
Nypels, 317

O

OECD, 23, 37, 42, 43, 48, 62, 63, 69, 85, 98, 120, 125, 126, 127, 130, 151, 155, 200, 224, 246,
247, 300, 303, 304, 307, 308, 309, 313, 319
Oers, F.M., 97
Oil crisis, 90, 149, 150
Okroi, L.J., 319
Okun, 40
Okun, A., 24, 94, 319
Oort, 98, 131
Oplatka, A., 68
Opstal, R. van, 319
Ormerod, P., 219, 220, 221, 228, 229, 314, 319

P

Palgrave, The New, 160, 171, 196, 315, 321
Palley, Th., 235, 319
Pareto, V., 21, 57, 74, 102, 162, 182, 183, 206, 212, 215, 220, 225, 232, 309
Parks, B., 264
Parliament, 25, 29, 33, 65, 85, 98, 183, 261, 279, 280, 286, 304
Patinkin, D., 95, 319
Pearce, D.W., 160, 314
Pearson, M., 247
Pechman, J.A., 319
Pelkmans, J., 319
Pen, J., 100, 319
Perry, G., 93
Phelps, E., 28, 40, 94, 121, 122, 219, 220, 221, 222, 224, 225, 226, 227, 229, 247, 314, 319
Phillips, A.W., 40, 41, 93, 99, 121, 125, 320
Phillipscurve, 14, 38, 40, 83, 84, 90, 91, 94, 96, 97, 106, 115, 118, 120, 122, 124, 198, 221, 225,
230, 305, 308
Pigou, C., 33, 34, 96, 109
Pikkemaat, A., 319
Piore, 208, 319
Ploeg, F. van der, 312, 317, 320
Plurality, 177, 178
Political Economy, 3, 11, 12, 13, 14, 26, 34, 82, 183, 184, 198, 212, 216, 222, 231, 235, 237, 252,
266, 267, 268, 270, 289, 301, 307, 309, 311, 312, 313
Popper, K., 76
Postma, R., 259, 260
Poverty, 3, 17, 18, 21, 26, 33, 34, 37, 38, 42, 45, 56, 57, 58, 60, 61, 62, 84, 124, 125, 185, 216,
217, 220, 227, 230, 234, 243, 244, 245, 246, 247, 253, 260, 264, 265, 272, 278, 293, 295, 296,
299, 305, 306, 307, 309, 316, 318
Praag, B. van, 93, 320
President, 13, 14, 24, 25, 29, 33, 59, 68, 85, 109, 143, 158, 180, 183, 245, 251, 253, 270, 279,
280, 282, 283, 284, 285, 286, 287, 288, 289, 293, 294, 295, 314, 321
Probability, 24, 65, 80, 81, 96, 104, 116, 194, 195, 197, 215, 315, 317
Productivity, 12, 27, 37, 41, 42, 58, 60, 61, 62, 63, 89, 93, 97, 99, 100, 102, 106, 107, 116, 123,
124, 125, 126, 129, 133, 134, 135, 138, 139, 145, 150, 153, 155, 156, 198, 200, 201, 204, 213,
218, 222, 223, 227, 239, 241, 246, 275, 298, 308, 309
Progression factor, 112, 113, 114, 127
Public Choice, 12, 14, 207, 250, 305, 318, 320
PvdA, 257, 258, 312, 322
Pythagoras, 72, 73, 74, 75, 76, 78

Q

Quah, 99, 100, 320
Queen, 215, 279

R

Raiffa, 160, 318
Random, 78, 79, 80, 81, 82, 85, 118, 215, 229
Rastogi, 318
Rational Expectations, 118, 121, 191, 208
Reagan, R., 143, 156, 227, 284, 299
Reijn, van, 320
Reuten, G., 320
Ricardian vice, 82
Rijken van Olst, H., 273, 320
RIVM, 261
Robbins, L., 186, 268, 269
Roebroek, 320
Roosevelt, F.D., 17, 19, 23, 234, 246, 299
Roscher, W., 268
Rosenmöller, P., 257, 258
Roskamp, 320
Rostow, W., 320
Russell, B., 164, 173
Rutten, F., 317, 320

S

Saari, D., 175, 177, 179, 180, 181
Sachs, J., 28, 93, 225, 227, 237, 312
Sala-i-Martin, X., 100, 311
Samuelson, P., 13, 14, 15, 255, 320
Saramago, J., 254, 256
Sargent, Th., 318
Scarpetta, S., 247
Schaaaijk, M. van, 150, 151, 155, 206, 212, 298, 303, 320
Scholz, J.K., 247, 248, 249, 250
Schor, J., 108
Schrijver, 320
Schröder, G., 56
Schrödinger, 78, 81, 279
Schultze, 314
Schumpeter, A., 82
Schuyt, C., 320
Scitovsky, 311
SCP, 261, 320
Segers, H., 252
Sen, A., 13, 21, 22, 158, 160, 171, 172, 174, 175, 217, 218, 232, 233, 234, 235, 278, 320
Shapiro, C., 299, 320
Shone, R., 320
Shultz, G., 285, 287
Siebrand, J., 264
Simpson, 96, 317
Skidelsky, R., 13, 19, 20, 183, 276, 301, 320
Skinner, A., 17, 320
Slesnick, D., 245
Smith, A., 11, 17, 78, 99, 109, 184, 216, 232, 233, 234, 320
Snower, D., 41, 187, 225, 318
Social Security, 36, 93, 108, 110, 139, 154, 207, 208, 219, 232, 238, 285, 298, 315
Soest, A. van, 317
Solow, R., 83, 93, 109, 226, 317, 320, 321
Speth, J.G., 20
Stagflation, 3, 18, 24, 30, 31, 36, 38, 40, 57, 93, 94, 96, 97, 106, 120, 126, 128, 135, 157, 198, 224, 230, 235, 236, 242, 250, 306, 307, 308, 309, 310, 312, 316
Standing, G., 126, 175, 321
Stappershoef, E. van, 264
Statistics, 25, 38, 44, 79, 80, 81, 82, 86, 197, 214, 235, 243, 244, 245, 285, 287, 295, 311, 315
Steuart, J., 267, 268
Stevens, Th., 321
Stiglitz, J., 29, 288
Stiphout, H. van, 321
Stockman, D., 27, 67, 288
Subsistence, 45, 46, 49, 52, 59, 106, 107, 109, 154
Sudgen, R., 321
Sulloway, F., 33, 279, 301, 321
Summers, L., 287, 321
Suppes, P., 81
Swank, O., 321
Sweden, 198, 307, 321
SWF, Social Welfare Function, 79, 151, 152, 158, 162, 172, 188, 189, 190, 207, 209, 211, 212, 213, 215
Szenberg, M., 321

T

T[.] general tax function, 45, 49, 102, 109, 111, 112, 123, 125, 128, 140, 141, 142, 143, 199
Tajuddin, I., 321
Takayama, A., 321
Tax Void, 43, 47, 48, 51, 53, 83, 138, 139, 186, 305, 308
Tax[.] special nonlinear, 45, 129, 133, 134, 137, 142, 143
Technology, 12, 31, 37, 42, 57, 58, 61, 62, 104, 135, 176, 221, 227, 231, 236, 239, 242, 298, 299
Teigen, R., 314, 320, 321
Theeuwes, J., 96, 264, 321
Theil, H., 241, 251, 321
Thorn, R., 317
Throgmorton, 34, 321
Thurow, L., 231
Tinbergen, J., 15, 32, 33, 59, 63, 67, 83, 100, 208, 216, 221, 222, 224, 233, 250, 251, 252, 307, 310, 311, 312, 313, 317, 319, 320, 321

Tintner, G., 70, 76, 82, 321
Tobin, J., 41, 106, 107, 160, 170, 254, 321
Tocqueville, de, 277
Todd, E., 302
Trevithick, J., 322
Trias Politica, 12, 14, 16, 17, 20, 21, 24, 25, 28, 30, 35, 220, 224, 225, 230, 264, 279, 301, 306, 308, 313
Tullock, G., 14, 27, 321
Tyrväinen, T., 246

U

Unemployment, 3, 14, 15, 18, 19, 22, 23, 26, 27, 31, 34, 35, 36, 37, 38, 39, 41, 42, 43, 44, 47, 48, 53, 56, 57, 58, 60, 61, 62, 63, 64, 65, 66, 68, 70, 74, 80, 84, 86, 89, 90, 92, 93, 95, 96, 97, 98, 99, 103, 104, 105, 106, 109, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 133, 138, 139, 141, 149, 150, 151, 152, 155, 156, 186, 187, 198, 199, 200, 201, 203, 204, 205, 206, 207, 208, 211, 212, 213, 214, 218, 219, 220, 221, 225, 226, 227, 229, 230, 231, 234, 236, 237, 238, 239, 240, 241, 244, 247, 250, 251, 252, 253, 254, 256, 259, 262, 264, 285, 288, 289, 298, 299, 300, 301, 303, 304, 305, 307, 308, 309, 310, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321
Uno, 321
US Federal Reserve Bank, 238, 285
US, USA, 3, 13, 14, 15, 17, 22, 23, 25, 27, 37, 38, 58, 61, 62, 67, 69, 98, 108, 110, 124, 125, 129, 158, 212, 218, 219, 231, 235, 236, 238, 239, 241, 242, 246, 248, 249, 251, 255, 279, 281, 282, 283, 288, 289, 297, 299, 303, 304, 305

V

Value Added Tax (VAT), 53, 54, 127, 135, 204, 308
Varian, H., 275, 299, 319, 320, 321
Veblen, Th., 268
Velthoven, B.C.J. van, 314, 321
Verdoorn, P.J., 251
Verkade, E., 320
Verkerk, D., 264
Visscher, G., 321
Volcker, P., 237, 285, 299
Vromans, M., 264

W

Walras, L., 202, 241, 277
Wanniski, J., 227
Weddepohl, H., 264
Wemelsfelder, 322
Whinston, M., 175, 318
Wilson, R., 197
Winden, F. van, 207, 315
Wolff, P. de, 251, 270
Wolfram, S., 264, 322
Wolfson, D., 322
Workswick, D., 322
World Bank, 65, 233, 304

Z

Zalm, G., 251, 258
Zijlstra, J., 320, 322
Zoon, C., 254
Zwan, A. van der, 150, 315
Zwezerijnen, 315, 316, 318

End notes

[1] Greek 'oikos' = 'estate, house', 'nomos' = 'law, custom' and 'polis' = 'city, community'. The Dutch word for 'political economy' is 'staathuishoudkunde' - with 'kunde' = 'theory and art' and 'huishouden' = 'home maintenance' (with 'huishoudster' = 'cleaning lady'). See chapter 7 below and the appendix on the definition of 'economics'.

[2] Gould (1980) recalls that Charles Darwin was also inspired by Adam Smith.

[3] An example is the debate between Heilbroner and Dasgupta, see P. Dasgupta (1998). Heilbroner regards 'economics' as Political Economy only, and hence neglects the other fields of economics. Dasgupta emphasises the validity of normal economics, and replies: "Economics does not encompass the whole of the social and moral sciences." His argument apparently is that science arises from cutting up knowledge in specific approaches. But this neglects the problem of integration.

[4] The Economist February 19 2000 (p74) gives a review of Mancur Olson "Power and prosperity" (2000) that develops the same line of thought.

[5] Though I might remark that 'management' itself already implies some influence of some people on others - it is a recipe for stress if there would be responsibility but no influence.

[6] Holland: Centraal Planbureau (Central Planning Bureau, CPB), France: Commissariat du Plan, Germany: Sachverständigenrat. The UK apparently relies on the Treasury.

[7] Keynes here most likely borrowed Einsteins distinction between the special and general theory of relativity. See also Skidelsky (1992:487).

[8] Though see Hicks (1983:374).

[9] Remarkably, also the JEL codes have 'Keynesian' next to 'neoclassical'.

[10] Vide Keynes's very definition of 'effective demand': what businesses expect to sell and thus are willing to currently produce, after taking account of already available stocks. 'Effective demand' thus is another word for 'production'. Key Keynesian is seeing production as an expectational variable.

[11] It must be recalled that more economists in the early 1900s turned from comparative statics to dynamics. A key figure is Tinbergen, who used the calculus of variations in his thesis and who presented the first macro-economic model that the world has seen (see e.g. Boumans (1992) and Barten (1988)). It may be noted that Tinbergen's first national model does not contain a monetary sector. In a sense understandable, since the model was for Holland, and Holland was on the gold standard at that time, and we know - with Mundell, who refers to Tinbergen's 'instrument argument' - that monetary policy in that case is ineffective. Anyway, Tinbergen clearly was more of a 'real business cycle' analyst, while Keynes had the feeling for monetary issues. Keynes's approach appeared more important, primarily since money is a generic policy instrument for the whole (world) economy.

[12] An illustrative example of the statics vs. dynamics issue, and of the problems that economists continue to have in making this distinction, is page 125 of Gregory Mankiw's 1998 "Principles of economics" edition. Concerning the payroll tax and the distribution of its burden over firms and workers, and using a diagram of elastic demand and supply, he states: "This division of the tax burden between workers and firms does not depend on whether the government levies the tax on workers, levies the tax on firms, or divides the tax equally between the two groups." Referring to a US Congress effort to allocate the burden he concludes: "This example shows that the most basic lesson of tax incidence is often overlooked in public debate." Well, this conclusion is only valid for the static analysis, but in dynamics, take home pay is directly affected by regulations, while wage contracts are adjusted by quite different bargaining processes. The US Congress may well have taken a right decision for the medium run.

[13] I will take the position that definitions (and thus tautologies) can be very important too. I tend to think that Samuelson in fact would not disagree if the point would be formulated as such. Indeed, Samuelson has remained more of a theorist himself, and is less known for work on collecting data and estimation.

[14] Western economies suffer since the early 1970s from mass unemployment and the threat of inflation. This bad mix of bad ingredients is called "stagflation" for short. "Stagflation" in fact is a concatenation of "stagnation" and "inflation". The word was coined around 1970 when national income growth stagnated and brought along unemployment. Since then growth has somewhat recovered, and stagflation has been redefined and now is properly understood as a bad 'trade-off' of both inflation and unemployment. See below.

[15] Note that Kennedy (1999) in his first six pages prominently refers to Keynes (1919).

[16] UN-WIDER Press Release "40 International Experts and Scholars Meet in Helsinki to Discuss the Wave of New Emergencies, 6 - 8 October 1996, at Hotel Marski".

[17] Interview with Kruidierink, "Progress ? No, it is a black hole." Volkskrant Oct. 16 1999

[18] Barro also discusses the relationship between the quality of the US CEA and US growth.

[19]

http://europa.eu.int/comm/employment_social/employment_analysis/eie/eie2004_stat_annex_en.pdf

[20] Participation is taken here as the employment rate (employment in % of the population in the age bracket 15-64) plus the unemployment rate (age 15+).

[21] Kennedy (1999:241) describes the threat of Huey Long: "Roosevelt shared that assesment. 'Long plans to be a candidate of the Hitler type for the presidency in 1936,' he told William E. Dodd, his ambassador to Germany. 'He thinks he will have a hundred votes in the Democratic party and put in a reactionary Republican. That would bring the country to such a state by 1940 that Long thinks he would be made dictator. There are in fact some Southerners looking that way, and some Progressives are drifting that way... Thus it is an ominous situation.' [note] " Also, the US already had a disputable policy with regards to its Black population, and no doubt they could be made scapegoats like the Jews in Europe.

[22] Hayek discussed 'knowledge' and 'constitutional reform', so that the current line of thought is not alien to economics - though see the appendix on Hayek.

[23] There exists still one matter to settle though. Krugman suggests that Supply-siders were no serious economists. Similarly, Mankiw (1998:29) calls it 'fad economics'. But after they got their respective Nobel Prizes, both Lucas and Mundell told the press that they were such Supply-siders.

[24] The two major recent revisions in the US, the chained price index and the redefinition of software as investment (and thus growth), are just examples.

[25] If the Court would be scientific but would be only an island in an ocean of neglect, the Court would already be an improvement over the current situation - but less than optimally so. A wise parliament also provides for funds for independent research bodies with related objectives, that then will provide a critical working environment.

[26] The term 'existing theory' will be used in this volume for the tradition of research and results indicated by these references. In the light of the abundance of schools and attitudes it is a bit difficult of course to apply that term. However, those who have studied Krugman's books and above references, should be sensitive to this suggestion. As a next step, I will present a novel analysis below, that leaves much of existing economic theory intact, and only supplements it with some 'missing links'. With this supplement it becomes even easier to recognise the 'existing economics'.

[27] Note that this book quotes Keynes a lot, and in particular the 60 year old *General Theory*, and only refers to modern authors. Some readers might find this out of balance. However, in the light of the main argument, about the Trias Politica and the Economic Supreme Court, I found it rather natural to proceed like this. I think that it emphasises the enduring quality of economics per se. That, admittedly, is a matter of taste.

[28] Robert Kuttner, "Peddling Krugman", American Prospect, 9.96 gives a nice example: "(...) Joseph Stiglitz, chair of the Council of Economic Advisors and author of a recent report that, in very delicate wording, computed that most newly created jobs were in occupations or industries that had historically paid "above median wages." This, of course, did not mean that the newly created jobs actually paid above-median wages. Stiglitz, threading his way between the administration's need to paint a rosy election-year picture and his own professional integrity, allowed as much." See <http://members.home.net/copernicus/28kutt.html>

[29] Note that labour could (actually should) be aggregated with wage weights, but this normally isn't done.

[30] Keynes and Tinbergen were both first-borns. Sulloway's theory suggests that Keynes's General Theory is a 'conservative revolution'. It gave a theoretical base to existing ideas, helping save capitalism from the communist threat. Similar for Tinbergen. Tinbergen's brother Nico had more radical ideas about ethology. Such interpretations are hazy of course.

[31] With the necessary proviso that they will not easily sail over the edge of the world.

[32] Taken from Craig Marcott's site, who refers to Pigou (1932) "The economics of

[33] See chapter 34 on the notion of a 'moral imperative'.

[34] This analysis is taken from Colignatus (1990a) and (1994a), and since then more years have past. CPB researchers Broer c.s. (1999) recently write: "The high level of unemployment in OECD Europe remains one of the puzzles of empirical macroeconomics. (...) This is somewhat surprising in view of the considerable policy effort that has been made (...) " See the OECD site: <http://www.oecd.org> around 1999-2000 contains such data on stagnation and slow improvement. One assumes the same in 2004.

[35] Taxes in this book are generally inclusive of welfare state premiums.

[36] Data: US Bureau of Labor Statistics and The Netherlands Central Planning Bureau. The US is more useful here than Europe, since it has consistent time series on a single economy.

[37] The Netherlands had a wage explosion in the early 1950s after a period of wage restraints, but this still allowed a quick return afterwards to the favourable lower left region.

[38] Data The Netherlands Central Planning Bureau. 'Not working' involves the Dutch programs ZW+AAW+WAO+IOAW+IOAZ+WW+Vorstverlet+ABW (sick leave, disability from birth or later, workers and independents, welfare relief and unemployment). Welfare relief was intended to be temporary but can be permanent, for example for the 55+ workers who do not have to apply for jobs any more.

[39] On p358 they discuss the Lucas supply function $y = \beta (p - p^*)$ for GNP y and inflation p , and remark that this is also Lucas's explanation of the Phillipscurve. In chapter 10 they discuss some 'useful models', of which in p542-555 the Phillipscurve, starting out with Tobin's 1972 discussion of price and wage dynamics.

[40] The 'insider-outsider theory' (Lindbeck & Snower (1988)) has the similar effect that the decisive group shifts the burden. But there the emphasis is on union membership.

[41] Borjas also states: "(...) the demand for unskilled workers declined perhaps because of technological change which favors skilled workers or because of the internationalization of the U.S. economy." (p467)

[42] Of course, not all unemployment is caused by the minimum wage. The 25% in the graph is a result of simplifying assumptions. But it is an acceptable presentation, since Dutch official statistics grossly underestimate unemployment (and reduce the labour force).

[43] Money is denoted as MX . Perhaps unfortunate, but it keeps our formulas readable.

[44] B for Dutch "Bestaansminimum" (subsistence). English Basic Net Income or Benefit.

[45] Relation (13.1b) gives the Bentham tax function, that has exemption x and marginal rate r . We will write $Bentham[y]$ for the Bentham tax, $Tax[y]$ for a special nonlinear function, and $T[y]$ for a general function.

[46] Welfare states commonly distinguish the minimum earning wage and the minimum on benefit. In Holland the latter is 70% of the former, thus some $S = 0.7 B$. But then there are subsidies that apply to people on benefit - and the poverty trap discussion starts. Here it suffices to take $S = B$. Chapter 39 deals with the argument in reduced form fashion.

[47] In chapter 28 we will develop the formula for the influence of indexation on minimum wage M .

[48] This graph gives the theoretical values for the Dutch minimum wage, if indexation since 1951 had been rigorously applied with inflation for exemption and net average income for subsistence. The actual minimum wage however was different, but within range. OECD (2000:40) Chart 2.1 graphs the observed real minimum with 1975 = 100 with for example {1970, 77}, {1978, 108}, {1996, 85}.

[49] Common themes in tax theory are merit versus demerit goods and that one would tax the less mobile factor labour rather than capital. These themes have less priority than the tax void. The

main reason that remains for a VAT (or a profit tax) is that the government wants to monitor the economic process.

[50] These are virtual subsidies only: while handed out, they are immediately cashed in under the tax rule.

[51] Note the bureaucratic mind-set: There is a tax system and thus people are supposed to pay taxes. Benefits are established at a net level but are recalculated to a gross level so that the Ministry of Finance is happy again that it can levy taxes. By consequence it also seems as if much more is paid on benefits.

[52] In general <http://econwpa.wustl.edu>. More specifically Colignatus (1996a, c) at <http://econwpa.wustl.edu/months/get/9604.html>, and Colignatus (1998a) at <http://wueconb.wustl.edu/eprints/get/papers/9808/9808002.abs>

[53] The OECD (1998) "Employment Outlook" Table 2.3 gives an international comparison of the level of the minimum wage in relation to the median wage. The situation in the Netherlands may be a yardstick to interpret these data. The table shows that the minimum wage in the Netherlands (in 1997) was 55.9% of full-time median earnings (excluding overtime and bonuses). Applying that rate to the 2002 values in Table 3 gives an estimate of the 2002 median of € 27,975. However, the proper subsistence wage should rather be € 12,516, i.e. net of taxes and premiums. The ratio thus is rather 44.7% than 55.9%. The rate could even be lower when we consider VAT and other taxes and the possibility of some employment subsidy, so that 30% could well be attainable. With this yardstick, the OECD levels of the minimum wage are strikingly high.

[54] The analysis in chapter 13 holds in theory for full time workers. In reality, only part of this Tax Void Unemployment will be on benefit, since a part will substitute for part-time work (at a wage lower than full-time subsistence). A practical question is also whether the tax statute really must, and if so can, distinguish properly between full-timers and part-timers. These questions need to be answered, and definitely so when a practical run is done with a general equilibrium model.

[55] This was actually developed in Colignatus (1992b, 1995a). Dutch readers will benefit from Colignatus (1994b).

[56] See also the appendix on this book.

[57] This was known before, and in fact it is a good hypothesis that much of Euclid's geometric knowledge had already been developed in ancient Egypt. The Greek contribution appears to be the notion of 'proof'.

[58] Stephen Levinson - interview in NRC-Handelsblad, December 18 1999

[59] See also the appendix on this book.

[60] My understanding of quantum mechanics benefitted much from the papers on the site of Richard Gill, at <http://www.math.uu.nl/people/gill/> and Gill (1996, 1997a & b), and Barndorf-Nielsen, Gill and Jupp (1998).

[61] Rutherford seems to have said: "If you need statistics, then you have the wrong model" (or something to this effect).

[62] Physicists might object to my use of the word 'understanding'. Their modern method is to describe the mechanism or process, and to stay far from other ways of understanding. This is considered to be an advancement compared to earlier methods, where they apparently lost a lot of time trying to understand 'force' instead of simply modeling and measuring. But if this is understood, there is no reason to avoid the word 'understanding'.

[63] See chapter 34 for deontic logic on this. Note that 'God on Earth' would be a situation of for some T , with x the vector of allocations to the agents, both observed and the optimal SWF point. Since there is no objective SWF, the concept of eternal bliss hangs in the air as well, though.

[64] There appears to exist a strange miscommunication between physics and mathematics. Gill quotes Suppes: "For those familiar with the applications of probability and mathematical statistics in mathematical psychology or mathematical economics, it is surprising indeed to read the treatments of probability even in the most respected texts of quantum mechanics. ... What is

surprising is that the level of treatment in both terms of mathematical clarity and mathematical depth is surprisingly low. Probability concepts have a strange and awkward appearance in quantum mechanics, as if they had been brought within the framework of the theory only as an afterthought and with apology for their inclusion." (P. Suppes, 1963). Gill suggests that this is still the case in 1998.

[65] I would also advise quantum physicists (or journalists) to abstain from gibberish descriptions of 'quantum states'. A statement like "Schrödinger's cat is both alive and dead, or in a superposition of life and death, and only collapses to either of these once you open the box" is nonsense, basically already in terms of logic, but for certain with the scientific predisposition to determinism.

[66] The NRC-Handelsblad April 4 2000 reports about research by Lene Hau. The so-called Bose-Einstein Condensation arises at zero Kelvin: when speed is zero, and thus is known, then apparently atoms 'merge' into 'one amorf collective', the BEC. Hau says that she can actually see it, and she uses it to slow down light to human speeds. She explains that her results are not statistical but 'honest raw data'. This approach seems on the right track.

[67] I found, to my surprise, that Hayek has a similar approach. See the appendix on Hayek.

[68] The importance to recognise a 'regime switch' cannot be emphasised enough. Perhaps the Edmund Burke statement can help here: "Though nobody can draw a line between the boundaries of day and night, it is still possible generally to distinguish light and dark fairly well." (quoted in Gould (1980) - translated back from the Dutch again).

[69] Real transfer income TRF will later be taken as $B/P U$. In practice there are also non-unemployment transfers.

[70] Later chapters will re-use S for some general supply function.

[71] Note that M is the minimum wage. Our formulas are better readable this way.

[72] Note that Y is nominal GDP if $NX = 0$.

[73] Then LE follows from $LE = \alpha Y / W$, and KE follows from $\{LE, YR$ and the production function}, and PK follows from $\{KE$ and $KE = (1 - \alpha) Y / (i PK)\}$.

[74] For example as follows. Regard $LE = \alpha Y / W$ of above. Substitute $Y = P YR$, and rework: $P = (W LE) / (\alpha YR) = \beta W$ if labour and output are proportional.

[75] This means that causality runs from money to inflation, to unemployment, to the wage.

[76] The short run is defined as the period in which there is no capacity effect from investments on the stock of capital. After a year there generally is such an effect. The medium run is about 5 years, and the long run might be taken as 10 years or more.

[77] This relationship now is dropped from the model, however. While Graafland & Huizinga (1999) include the marginal tax rate, Broer c.s. (1999) don't, and only use the average tax rate. From a personal conversation with Broer, I understand that this is because their relationship is to be used in a smaller model that will be used for policy simulations (and that has to drop some variables in order to be smaller). This again shows that some choices can be irrational even though circumstances may make them seem rational.

[78] (I) Professor Oort is indeed related to the discoverer of the astronomical "Oort cloud". Perhaps we might speak about an "Oort Cloud" in economics too: big misconceptions and misunderstandings flying about in professorial minds, occasionally hitting Earth to great disaster. (II) A member of the Oort commission was professor dr. C.A. (Flip) de Kam, who was also an assistant to the social-democratic fraction in Parliament at the time of the 'Duisenberg Disaster', see chapter 14. Around 1997 we had a chat, and he still didn't understand the issue - and thus it doesn't help to explain it. De Kam is now at the OECD, it seems in an important position. I highly appreciate some his work, like De Kam & Van Herwaarden (1989), and I regret his misunderstanding. Should he once understand it, he would become a welcome and powerful ally in explaining matters to a larger audience. Still, De Kam's omnipresence reminds one of Ira

Magaziner's, vide Barro (1996:xii), Krugman (1994b:298) and Galbraith (1998:201), to apparently similar destructive effect.

[79] We don't perform a statistical test though. We just plot these graphs, and are satisfied by a rough lognormal approximation. For real tax experiments, we would use the original income class data.

[80] Lambert (1985:31) mentions that a Pareto distribution - close to the lognormal - has a nice property with regards to taxes. This should be investigated.

[81] An alternative interpretation of *ms* and *md* is to take them as the minimal levels for which the density shows positive values. The table then remains the same - though of course with a different interpretation.

[82] Borjas (1996:167) notes that the US minimum wage may have a noncompliance of 40%.

[83] From discussion with others I understand that Juliet Schor has made an issue of the high Dutch percentage of parttime work, presenting it as a social advancement. It likelier comes from the distortions of the tax system and social laws that force people into less working hours and lower wages. I have not read Schor, so my comment here is only a hypothesis, something to be surely checked.

[84] See Barro (1996:96-98) for some entertaining pages. That chapter also throws some useful light on the US CEA. Curious his statement however: "(...) we are still waiting for the first sighting of the Keynesian demand multiplier." (p111), i.e. curious in the light of the structure of macro-economic models.

[85] This indeed seems to be happening in Holland 1990-2005.

[86] I have considered to use the word 'stable' instead of 'constant', as so many authors write 'stable inflation'. But again, as 'accelerating inflation' is not correct, so is 'stable' not correct. A constant rate of inflation can be the only constant in a sea of instability. To allow for a later definition of a 'stable rate', it is advisable to pronounce CIRU and CWIRU as KIRU and KWIRU, and not as SIRU and SWIRU.

[87] In a dynamic setting $u[-1]$ will have a greater weight. The equation used here can be regarded to some extent as a longer run relation.

[88] Use $w^* = w$, solve (28.2) for $f[u]$ and solve (28.3) for $f[E[u]]$; and the rhs's are equal.

[89] Remember that $w = w^*$ in the final equation, and then use (28.1).

[90] Conceivably even, the government uses its instruments such as to create some surprise element deliberately. However, a statement like this is a typical result of modeling. Reality is full of surprises, so the need for governments to create some more does not seem realistic. The literature on 'credibility' similarly has a high academic content.

[91] Which is a nice spot to again emphasise the limitations of the linear assumption.

[92] In empirical analysis we might approximate demand by next period's employment, but then we must be aware that this already includes some crowding out effect.

[93] Please be aware of the intellectual risk that I am taking here: I only know (a) the Dutch situation, (b) the OECD (1986) report on indexation practices, (c) that European minimum wages are quite high and that the US has more poverty. The rest is a matter of logic and economics. From this I forecast the foreign situations and these stylized facts: and it will be fun to hear others confirm these.

[94] Chapter 27 uses q for natural public goods, but for lack of symbols we re-employ q here.

[95] See the note above on the Oort Commission: They created this; though many Dutch nowadays think that it has been around 'forever'.

[96] In terms of Table 7, we now interpret *ms* and *md* as the first values for which the densities have a positive value. Note: we need not add that $M \neq 0$ since obviously $B \neq 0$.

[97] Proponents for the NIT generally don't understand that home partners *produce* something, and could be taxed for that.

[98] My thoughts this were stimulated by Ate Nieuwenhuis's research on oligopoly.

[99] Note that this 'dynamic M ' concept differs from the 'dynamic marginal' concept. Note too that these concepts are only defined for M .

[100] Holland provides an empirical example. The real wage index rose from 1 in 1950 to 3.7 in 1980, and has been stagnant since then. But there have been tax reductions since 1990.

[101] It is to be noted though that director C.A. van den Beld read about the vintage approach in a German article, and asked Den Hartog to further investigate it, already in the years before. The model choice was not propelled by the Oil Crises, and, indeed, the theoretical link is weak - if not to say 'nonexistent'.

[102] Higher fuel costs also translated into a higher CPI and thus higher wage demands, giving another reason to be worried about wage costs. But this is another chain of reasoning.

[103] Much of the wage of high salaried persons will derive from custom and bargaining skill, but there will also be a serious part 'productivity'.

[104] It is essential to read Hueting (1980) and Van Ierland et al. (2001) for a proper understanding of the issue of growth.

[105] Vide the 'proof of God' paragraph in chapter 19.

[106] This is not without problem, since there are many logics, such as standard, threevalued, fuzzy, intuitionistic logic, and my own scheme of 'the logic of exceptions' (that I use to solve the liar paradox, and Russells and Gödels problems). However, here it suffices to presume standard logic. Note that the earlier version of this chapter (article) used a 'quantor free logic', where the use of a *variable* indicates the 'for all' quantor, and a *constant* indicates the 'there is' quantor. A subtlety is that this distinguishes between "Not $p \Rightarrow q$ ", that is equivalent to " $p_0 \& \sim q_0$ ", and " $\sim(p \Rightarrow q)$ ", that is equivalent to " $p \& \sim q$ ".

[107] If we were to put the question to Arrow, my bet is that he likely prefers incompleteness to inconsistency.

[108] That there should be at least 3 topics is actually an axiom that we have taken for granted.

[109] Discussion (evaluation and thus eventual publication) of (1990c) was blocked by the CPB directorate with the comment 'this issue exceeds the CPB intelligence' - which was inconsistent since I worked there. The EER referee reports of (1997b) are nonsense too.

[110] Thus there is a subtle distinction between:

(A) *The risk*, that is single (i.e. non-plural), and gives the expected value of the valued risks

(B) *The risks*, that thus is plural and gives the list of the the o_i that are losses. For a single outcome, we would have the difference between o and $\{o\}$ (element and singleton). With a list of outcomes $O = \{o_1, o_2, \dots, o_n\}$ we also have lists of prices $P = \{P_1, P_2, \dots, P_n\}$, and probabilities $Pr = \{p_1, p_2, \dots, p_n\}$, and a utility function u . (Continued next page.)

The money valued risks are $X = \{x_1, x_2, \dots, x_n\} = O * P = \{P_1 o_1, \dots, P_n o_n\}$.

The utility valued risks are $U = \{u(o_1), \dots, u(o_n)\}$. The expression $U^* = u(o_1, \dots, o_n)$ is less appropriate since the outcomes are mutually exclusive. However, since one might consider cases where one has some utility about 'the whole situation', the U^* might still be useful.

[111] Thus μ stands for the expected value and σ for the standard deviation (spread), and P the risk. Then, use R for the coefficient of correlation. Note that the use of 'spread' facilitates translation from learned journals to popular audiences that are less familiar with 'standard deviation'. Authors that use the word 'spread' for the difference between a futures and a spot price, should relabel to 'time premium'.

[112] In a personal discussion, Richard Gill (University Utrecht, KNAW) had doubts about my shorthand notation, and preferred

$E[x * I_{x < 0}[x]]$ where $I_A[x]$ is the indicator function with value 1 if $x \in A$ and 0 else. Gill's notation no doubt increases definitory clarity, but the shorthand is not bad and has the advantage of being short.

[113] Alternatively, relative risk can be seen as proportional to another level. What is important in the present discussion is the distinction with conditional risk.

[114] For (relative) risk we don't want to use the conditional distributions. For example, if there would be a small loss with a small probability p , the conditional might turn this in a large 'risk', since $1/p$ is would be a large number. So for risk we have a proper measure in the 'probable value' (loss * probability).

Risk is concerned with one's *worry* that bad information *might* arrive while it may not arrive. The conditional applies only if indeed new information arrives that the returns will remain below that target level. (Though the conditional might remain hypothetical.)

[115] If people would work on welfare, we would speak about workfare. Workfare generally is more efficient, since people on benefit will not have the utility of idleness.

[116] In a purely mathematical tract, the Lemma would be the theorem, and the Theorem would be a corollary.

[117] This is a strong claim of course. Policy makers are overloaded with data, and they have a hard time turning this into information. But this is often used as a cheap excuse too. They say 'I didn't know' while they should have said 'I hired an assistant who knew that he had to keep sensitive information from me so that I could later say 'I didn't know'.' The crux of the argument is that policy makers are responsible, by definition, for structuring the information process such that they know the relevant facts. It is up to the jury whether they can be excused for real human mistakes and external errors.

[118] This is a crucial part of the Definition & Reality methodology. In mathematical economics the theorems depend on axioms that are only hypothetical. In Political Economy that concerns reality, we also accept facts. On availability, see also the appendix on the presentation of the analysis for the US National Press in Washington 1993.

[119] If 'animal spirits' is not properly explained, it generates confusion. As this confusion exists, perhaps I need to provide this explanation here as well: Medieval philosophy distinguished between dead matter, plants and objects with a spirit - and the Latin word for spirit/mind is 'animus'. So Keynes's reference is not to wild beasts, though Mankiw suggests such with his mention of 'irrationality' and 'arbitrary changes in attitude'. As I understand it, Keynes entertains the consideration that beings with a mind by definition develop conceptions about reality, and act and take decisions in a state of uncertainty.

[120] Krugman though allows for a temporary adverse development in technology. This chapter was basically written as the paper Colignatus (1997a), and since then Krugman has seen more scope for the technology argument.

[121] I can understand your misgivings about having to read five books before allowed to continue. Personally, I already knew most of what Krugman is writing about, and this may also be the case for you. But it was a useful refresher, lots of fun reading, and when everybody reads them then there is some common ground.

[122] That is, most economists don't know yet, but I do, and thus 'the economics profession' knows it. In the same way, if a murderer knows that someone in the room knows that he is the villain, he is tempted to kill all in the room. This someone is going to tell !

[123] It is good to see that James Galbraith (1998) takes up this issue too. See below.

[124] Note that the reason why I am quite certain about my own approach is that I have given a mathematical theorem and proof based upon readily acceptable premisses. I also use a reduced form, but, deduction beats econometric testing.

[125] In 1997 I also wrote "(...bargaining...) has more to do with the level of wages than the (inflationary) rate of change." I have to retract that statement. I temporarily forgot my very own analysis

on the Phillipscurve ! Yes, I must have been irritated.

[126] And indeed, it must be feared that mainstream economists will not be interested much in inequality, so that they will also miss out on the interesting 'tract'. We may presume, however, that Galbraith will take another occasion to repair that error.

[127] Palley is assistant director of Public Policy for the AFL-CIO, and author of a book "Plenty of Nothing", that I have not read yet but that seems like a good buy.

[128] Galbraith does not refer to Bruno & Sachs (1985), but it is useful to note that this B&S analysis would be a major part for the explanations of the ordeal in the 1970s - which analysis apparently was insufficiently understood by Carter and Volcker. Also, a reference for the Volcker years is Hadjimichalakis (1984).

[129] Also Paul Krugman remarks, and expresses regret, that many of the poor become the victims of the Fed's anti-inflation policy: but he doesn't add that policy can be different.

[130] In May 2004 my employment concerned a cost-effectiveness analysis of population based screening for cervical cancer and its precursors: which indicates the job flexibility required.

[131] There were problems of bankruptcy of the distributor Gopher Publishers during most of 2003-2004, though interested readers could get the PDF of DRGTPE from my website.

[132] Saramago's new book speaks about a town where 83% of the population decides, silently and without any voiced protests, to vote a blank. The number 83% is a masterly stroke since it sounds much more realistic than 80% or 75% or 51%. But, is there any link with Fortuyn's 17% result or is it just coincidence ?

[133] "niet gewoon rechts, maar extreem rechts"

[134] "Hij gaat een grens over die je niet mag passeren. Nederland, word wakker !" and "Je wordt wakker, en je ziet Le Pen. Je wordt wakker en je ziet Fortuyn."

[135] "een gevaarlijk man"

[136] "het leiderstype-Mussolini"

[137] "buitengewoon minderwaardig mens"

[138] "haat en tweedracht te zaaien"

[139] "(...) kan worden gedocumenteerd dat Fortuyn door politici als Melkert, Rosenmöller en Zalm werd gedemoniseerd."

[140] In the same way, Tony Blair had his responsibility of leadership towards Iraq. Where Blair saw danger, he was right to warn for it and take some action. But Blair said "there are WMD" while he should have said "I wholeheartedly believe that there are or will be WMD, even though the current evidence shows there aren't and will not likely be there in the future as well".

[141] A theory laden question, since in Marx's original theory socialism required internationalism, while it was the 'great theorist' Lenin who dropped that, creating 'Marxist-Leninism'.

[142] A recent paradox of greater fun is that Queen Beatrix, Dutch Head of State and Head of the Dutch government, recently stated: "The lie governs." She thought of newspapers and obviously did not intend to refer to herself, but her choice of words allow this interpretation.

This text is made available by the copyright owner as an etext for the Project Gutenberg (see <http://www.gutenberg.org>). The Project Gutenberg header specifies under what general conditions the book may be distributed while associated with the Project Gutenberg trademark. Additional conditions are: (a) No commercial use or resale of the etext is allowed, (b) Hardcopy prints are to be acquired at the publisher Dutch University Press (see <http://www.rozenbergps.com> and ISBN 90-3619-172-6) or their designated partners. Please note that the etext uses HTML so that the etext layout will differ significantly from the official layout.

To professor Michael S. Hart
Founder, Project Gutenberg
405 West Elm Street
Urbana IL, 61801-3231, USA

Concerning: grant of rights
March 2 2005

Dear Project Gutenberg,

I am the sole copyright holder for the book: Thomas Colignatus, "Definition & Reality in the General Theory of Political Economy", 2nd edition, Dutch University Press, January 2005, ISBN 90-3619-172-6. Please note that "Colignatus" is my preferred name in science. It gives me pleasure to grant Project Gutenberg perpetual, worldwide, non-exclusive rights to distribute this book in electronic form through Project Gutenberg Web sites, CDs or other current and future formats. No royalties are due for these rights.

I understand that, minimally, you will include clear notation that the book is copyrighted by the copyright holder, which is me. The Project Gutenberg header specifies under what conditions the book may be distributed while associated with the Project Gutenberg trademark. The format of the text under those conditions may also be referred to as the "etext" format.

People might remove this header. Since I want to place additional restrictions (such as no commercial use or resale), I follow your advice of putting these at the start of the etext as well. Included in the etext are these additional conditions:

"This text is made available by the copyright owner as an etext for the Project Gutenberg. The PG header specifies under what conditions the book may be distributed while associated with the Project Gutenberg trademark. Additional conditions are: (a) No commercial use or resale of the etext is allowed, (b) Hardcopy prints are to be acquired at the publisher Dutch University Press at <http://www.rozenbergps.com> or their designated partners. Please note that the etext uses RTF so that the etext layout can differ from the official layout."

I have already sent a zip file with the RTF of the etext by email to dr. Gregory Newby.

Allow me to express my compliments to you and all the volunteers for the Project Gutenberg.

Yours sincerely,

Thomas H.A.M. Cool (Thomas Colignatus)
Scheveningen, The Netherlands
<http://www.dataweb.nl/~cool>

cc. Mr. Auke van der Berg
Dutch University Press / Rozenberg Publishers / Thela Thesis
Bloemgracht 82hs, 1015 TM Amsterdam, The Netherlands

Book Cover Text

ECONOMICS - POLITICS - LAW

This book explains why the world economy enjoyed a golden period in the years 1950-1970 and what went wrong since then. Europe in 2005 has a (hidden) unemployment of 10% and relies on an extensive benefit system to prevent poverty. The US has less unemployment but at the price of more poverty - making Europe reluctant to adopt that model. The world as a whole is a political and economic mess with much and extreme human suffering. Policymakers explain developments by causes such as globalisation, technology and welfare state sclerosis. Those explanations are not convincing however since trade and technology are sources for welfare, while the only answer to poverty is a well managed welfare state. This book provides an explanation based upon a new approach.

When democracies fail to care for their citizens, the cause must be looked for in the political system. The cause for the present failure can be found in the Trias Politica structure of national decision making - the

separation of powers of the Executive, Legislative and Judiciary branches of government. This structure gives too much room for political elites and bureaucrats to neglect the basic rights of the population at large. This approach provides an extension and follow-up to the "General Theory" of John Maynard Keynes. Inclusion of economic decision making into the analysis gives a truly General Theory of Political Economy. The theory shows that a constitutional amendment for an **Economic Supreme Court** is required - for logical reasons, for the experience of the whole 20th century, and for an actual improvement of real democracy which is so much needed for the 21st century.

An example of the policy failure is the curious phenomenon of the **Tax Void**. The tax void is the income range between the net and gross minimum wage. Since people may not work below the gross minimum, those affected don't earn income and don't pay taxes. The taxman intends to collect taxes in that range, but since there are no earnings there, he doesn't collect anything. The tax code only drives up the gross minimum wage, causing unemployment and the associated benefit burden. Abolishing that tax code would, since there are no revenues, not cost anything either - and create jobs. During 1950-1970 net minimum wage workers were hardly taxed and such taxes were gradually introduced. Policy makers have been oblivious to this issue and have actually been neglecting sound economic advice on it.

Historical description of the last decades - Novel contributions to economics, politics and law - Mathematical theorems and proofs - Empirical data and charts - Explanations for a larger public - Solution to Arrow's Theorem on social choice - Methodological exposition - Results related to other authors.

Colignatus is the scientific name of Thomas Cool (1954), an econometrician who has worked at the Dutch Central Planning Bureau (CPB) where he developed this theory. He has an extensive web site at <http://www.dataweb.nl/~cool>. The discussion in this book can be combined with his *Mathematica* software, available on that site.

Dutch University Press

ISBN 90-3619-172-6

*** END OF THE PROJECT GUTENBERG EBOOK DEFINITION &
REALITY IN THE GENERAL THEORY OF POLITICAL ECONOMY ***

Updated editions will replace the previous one—the old editions will be renamed.

Creating the works from print editions not protected by U.S. copyright law means that no one owns a United States copyright in these works, so the Foundation (and you!) can copy and distribute it in the United States without permission and without paying copyright royalties. Special rules, set forth in the General Terms of Use part of this license, apply to copying and distributing Project Gutenberg™ electronic works to protect the PROJECT GUTENBERG™ concept and trademark. Project Gutenberg is a registered trademark, and may not be used if you charge for an eBook, except by following the terms of the trademark license, including paying royalties for use of the Project Gutenberg trademark. If you do not charge anything for copies of this eBook, complying with the trademark license is very easy. You may use this eBook for nearly any purpose such as creation of derivative works, reports, performances and research. Project Gutenberg eBooks may be modified and printed and given away—you may do practically ANYTHING in the United States with eBooks not protected by U.S. copyright law. Redistribution is subject to the trademark license, especially commercial redistribution.

START: FULL LICENSE

THE FULL PROJECT GUTENBERG LICENSE

PLEASE READ THIS BEFORE YOU DISTRIBUTE OR USE THIS WORK

To protect the Project Gutenberg™ mission of promoting the free distribution of electronic works, by using or distributing this work (or any other work associated in any way with the phrase "Project Gutenberg"), you agree to comply with all the terms of the Full Project Gutenberg™ License available with this file or online at www.gutenberg.org/license.

Section 1. General Terms of Use and Redistributing Project Gutenberg™ electronic works

1.A. By reading or using any part of this Project Gutenberg™ electronic work, you indicate that you have read, understand, agree to and accept all the terms of this license and intellectual property (trademark/copyright) agreement. If you do not agree to abide by all the terms of this agreement, you must cease using and return or destroy all copies of Project Gutenberg™ electronic works in your possession. If you paid a fee for obtaining a copy of or access to a Project Gutenberg™ electronic work and you do not agree to be bound by the terms of this agreement, you may obtain a refund from the person or entity to whom you paid the fee as set forth in paragraph 1.E.8.

1.B. “Project Gutenberg” is a registered trademark. It may only be used on or associated in any way with an electronic work by people who agree to be bound by the terms of this agreement. There are a few things that you can do with most Project Gutenberg™ electronic works even without complying with the full terms of this agreement. See paragraph 1.C below. There are a lot of things you can do with Project Gutenberg™ electronic works if you follow the terms of this agreement and help preserve free future access to Project Gutenberg™ electronic works. See paragraph 1.E below.

1.C. The Project Gutenberg Literary Archive Foundation (“the Foundation” or PGLAF), owns a compilation copyright in the collection of Project Gutenberg™ electronic works. Nearly all the individual works in the collection are in the public domain in the United States. If an individual work is unprotected by copyright law in the United States and you are located in the United States, we do not claim a right to prevent you from copying, distributing, performing, displaying or creating derivative works based on the work as long as all references to Project Gutenberg are removed. Of course, we hope that you will support the Project Gutenberg™ mission of promoting free access to electronic works by freely sharing Project Gutenberg™ works in compliance with the terms of this agreement for keeping the Project Gutenberg™ name associated with the work. You can easily comply with the terms of this agreement by keeping this work in the same format with its attached full Project Gutenberg™ License when you share it without charge with others.

This particular work is one of the few individual works protected by copyright law in the United States and most of the remainder of the world, included in the Project Gutenberg collection with the permission of the copyright holder. Information on the copyright owner for this particular work and the terms of use imposed by the copyright holder on this work are set forth at the beginning of this work.

1.D. The copyright laws of the place where you are located also govern what you can do with this work. Copyright laws in most countries are in a constant state of change. If you are outside the United States, check the laws of your country in addition to the terms of this agreement before downloading, copying, displaying, performing, distributing or creating derivative works based on this work or any other Project Gutenberg™ work. The Foundation makes no representations concerning the copyright status of any work in any country other than the United States.

1.E. Unless you have removed all references to Project Gutenberg:

1.E.1. The following sentence, with active links to, or other immediate access to, the full Project Gutenberg™ License must appear prominently whenever any copy of a Project Gutenberg™ work (any work on which the phrase “Project Gutenberg” appears, or with which the phrase “Project Gutenberg” is associated) is accessed, displayed, performed, viewed, copied or distributed:

This eBook is for the use of anyone anywhere in the United States and most other parts of the world at no cost and with almost no restrictions whatsoever. You may copy it, give it away or re-use it under the terms of the Project Gutenberg License included with this eBook or online at

www.gutenberg.org. If you are not located in the United States, you will have to check the laws of the country where you are located before using this eBook.

1.E.2. If an individual Project Gutenberg™ electronic work is derived from texts not protected by U.S. copyright law (does not contain a notice indicating that it is posted with permission of the copyright holder), the work can be copied and distributed to anyone in the United States without paying any fees or charges. If you are redistributing or providing access to a work with the phrase “Project Gutenberg” associated with or appearing on the work, you must comply either with the requirements of paragraphs 1.E.1 through 1.E.7 or obtain permission for the use of the work and the Project Gutenberg™ trademark as set forth in paragraphs 1.E.8 or 1.E.9.

1.E.3. If an individual Project Gutenberg™ electronic work is posted with the permission of the copyright holder, your use and distribution must comply with both paragraphs 1.E.1 through 1.E.7 and any additional terms imposed by the copyright holder. Additional terms will be linked to the Project Gutenberg™ License for all works posted with the permission of the copyright holder found at the beginning of this work.

1.E.4. Do not unlink or detach or remove the full Project Gutenberg™ License terms from this work, or any files containing a part of this work or any other work associated with Project Gutenberg™.

1.E.5. Do not copy, display, perform, distribute or redistribute this electronic work, or any part of this electronic work, without prominently displaying the sentence set forth in paragraph 1.E.1 with active links or immediate access to the full terms of the Project Gutenberg™ License.

1.E.6. You may convert to and distribute this work in any binary, compressed, marked up, nonproprietary or proprietary form, including any word processing or hypertext form. However, if you provide access to or distribute copies of a Project Gutenberg™ work in a format other than “Plain Vanilla ASCII” or other format used in the official version posted on the official Project Gutenberg™ website (www.gutenberg.org), you must, at no additional cost, fee or expense to the user, provide a copy, a means of exporting a copy, or a means of obtaining a copy upon request, of the work in its original “Plain Vanilla ASCII” or other form. Any alternate format must include the full Project Gutenberg™ License as specified in paragraph 1.E.1.

1.E.7. Do not charge a fee for access to, viewing, displaying, performing, copying or distributing any Project Gutenberg™ works unless you comply with paragraph 1.E.8 or 1.E.9.

1.E.8. You may charge a reasonable fee for copies of or providing access to or distributing Project Gutenberg™ electronic works provided that:

- You pay a royalty fee of 20% of the gross profits you derive from the use of Project Gutenberg™ works calculated using the method you already use to calculate your applicable taxes. The fee is owed to the owner of the Project Gutenberg™ trademark, but he has agreed to donate royalties under this paragraph to the Project Gutenberg Literary Archive Foundation. Royalty payments must be paid within 60 days following each date on which you prepare (or are legally required to prepare) your periodic tax returns. Royalty payments should be clearly marked as such and sent to the Project Gutenberg Literary Archive Foundation at the address specified in Section 4, “Information about donations to the Project Gutenberg Literary Archive Foundation.”
- You provide a full refund of any money paid by a user who notifies you in writing (or by e-mail) within 30 days of receipt that s/he does not agree to the terms of the full Project Gutenberg™ License. You must require such a user to return or destroy all copies of the works possessed in a physical medium and discontinue all use of and all access to other copies of Project Gutenberg™ works.
- You provide, in accordance with paragraph 1.F.3, a full refund of any money paid for a work or a replacement copy, if a defect in the electronic work is discovered and reported to you within 90 days of

receipt of the work.

- You comply with all other terms of this agreement for free distribution of Project Gutenberg™ works.

1.E.9. If you wish to charge a fee or distribute a Project Gutenberg™ electronic work or group of works on different terms than are set forth in this agreement, you must obtain permission in writing from the Project Gutenberg Literary Archive Foundation, the manager of the Project Gutenberg™ trademark. Contact the Foundation as set forth in Section 3 below.

1.F.

1.F.1. Project Gutenberg volunteers and employees expend considerable effort to identify, do copyright research on, transcribe and proofread works not protected by U.S. copyright law in creating the Project Gutenberg™ collection. Despite these efforts, Project Gutenberg™ electronic works, and the medium on which they may be stored, may contain “Defects,” such as, but not limited to, incomplete, inaccurate or corrupt data, transcription errors, a copyright or other intellectual property infringement, a defective or damaged disk or other medium, a computer virus, or computer codes that damage or cannot be read by your equipment.

1.F.2. LIMITED WARRANTY, DISCLAIMER OF DAMAGES - Except for the “Right of Replacement or Refund” described in paragraph 1.F.3, the Project Gutenberg Literary Archive Foundation, the owner of the Project Gutenberg™ trademark, and any other party distributing a Project Gutenberg™ electronic work under this agreement, disclaim all liability to you for damages, costs and expenses, including legal fees. YOU AGREE THAT YOU HAVE NO REMEDIES FOR NEGLIGENCE, STRICT LIABILITY, BREACH OF WARRANTY OR BREACH OF CONTRACT EXCEPT THOSE PROVIDED IN PARAGRAPH 1.F.3. YOU AGREE THAT THE FOUNDATION, THE TRADEMARK OWNER, AND ANY DISTRIBUTOR UNDER THIS AGREEMENT WILL NOT BE LIABLE TO YOU FOR ACTUAL, DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE OR INCIDENTAL DAMAGES EVEN IF YOU GIVE NOTICE OF THE POSSIBILITY OF SUCH DAMAGE.

1.F.3. LIMITED RIGHT OF REPLACEMENT OR REFUND - If you discover a defect in this electronic work within 90 days of receiving it, you can receive a refund of the money (if any) you paid for it by sending a written explanation to the person you received the work from. If you received the work on a physical medium, you must return the medium with your written explanation. The person or entity that provided you with the defective work may elect to provide a replacement copy in lieu of a refund. If you received the work electronically, the person or entity providing it to you may choose to give you a second opportunity to receive the work electronically in lieu of a refund. If the second copy is also defective, you may demand a refund in writing without further opportunities to fix the problem.

1.F.4. Except for the limited right of replacement or refund set forth in paragraph 1.F.3, this work is provided to you ‘AS-IS’, WITH NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE.

1.F.5. Some states do not allow disclaimers of certain implied warranties or the exclusion or limitation of certain types of damages. If any disclaimer or limitation set forth in this agreement violates the law of the state applicable to this agreement, the agreement shall be interpreted to make the maximum disclaimer or limitation permitted by the applicable state law. The invalidity or unenforceability of any provision of this agreement shall not void the remaining provisions.

1.F.6. INDEMNITY - You agree to indemnify and hold the Foundation, the trademark owner, any agent or employee of the Foundation, anyone providing copies of Project Gutenberg™ electronic works in accordance with this agreement, and any volunteers associated with the production, promotion and distribution of Project Gutenberg™ electronic works, harmless from all liability, costs and expenses, including legal fees, that arise directly or indirectly from any of the following which you do or cause

to occur: (a) distribution of this or any Project Gutenberg™ work, (b) alteration, modification, or additions or deletions to any Project Gutenberg™ work, and (c) any Defect you cause.

Section 2. Information about the Mission of Project Gutenberg™

Project Gutenberg™ is synonymous with the free distribution of electronic works in formats readable by the widest variety of computers including obsolete, old, middle-aged and new computers. It exists because of the efforts of hundreds of volunteers and donations from people in all walks of life.

Volunteers and financial support to provide volunteers with the assistance they need are critical to reaching Project Gutenberg™'s goals and ensuring that the Project Gutenberg™ collection will remain freely available for generations to come. In 2001, the Project Gutenberg Literary Archive Foundation was created to provide a secure and permanent future for Project Gutenberg™ and future generations. To learn more about the Project Gutenberg Literary Archive Foundation and how your efforts and donations can help, see Sections 3 and 4 and the Foundation information page at www.gutenberg.org.

Section 3. Information about the Project Gutenberg Literary Archive Foundation

The Project Gutenberg Literary Archive Foundation is a non-profit 501(c)(3) educational corporation organized under the laws of the state of Mississippi and granted tax exempt status by the Internal Revenue Service. The Foundation's EIN or federal tax identification number is 64-6221541. Contributions to the Project Gutenberg Literary Archive Foundation are tax deductible to the full extent permitted by U.S. federal laws and your state's laws.

The Foundation's business office is located at 809 North 1500 West, Salt Lake City, UT 84116, (801) 596-1887. Email contact links and up to date contact information can be found at the Foundation's website and official page at www.gutenberg.org/contact

Section 4. Information about Donations to the Project Gutenberg Literary Archive Foundation

Project Gutenberg™ depends upon and cannot survive without widespread public support and donations to carry out its mission of increasing the number of public domain and licensed works that can be freely distributed in machine-readable form accessible by the widest array of equipment including outdated equipment. Many small donations (\$1 to \$5,000) are particularly important to maintaining tax exempt status with the IRS.

The Foundation is committed to complying with the laws regulating charities and charitable donations in all 50 states of the United States. Compliance requirements are not uniform and it takes a considerable effort, much paperwork and many fees to meet and keep up with these requirements. We do not solicit donations in locations where we have not received written confirmation of compliance. To SEND DONATIONS or determine the status of compliance for any particular state visit www.gutenberg.org/donate.

While we cannot and do not solicit contributions from states where we have not met the solicitation requirements, we know of no prohibition against accepting unsolicited donations from donors in such states who approach us with offers to donate.

International donations are gratefully accepted, but we cannot make any statements concerning tax treatment of donations received from outside the United States. U.S. laws alone swamp our small staff.

Please check the Project Gutenberg web pages for current donation methods and addresses. Donations are accepted in a number of other ways including checks, online payments and credit card donations. To donate, please visit: www.gutenberg.org/donate

Section 5. General Information About Project

Gutenberg™ electronic works

Professor Michael S. Hart was the originator of the Project Gutenberg™ concept of a library of electronic works that could be freely shared with anyone. For forty years, he produced and distributed Project Gutenberg™ eBooks with only a loose network of volunteer support.

Project Gutenberg™ eBooks are often created from several printed editions, all of which are confirmed as not protected by copyright in the U.S. unless a copyright notice is included. Thus, we do not necessarily keep eBooks in compliance with any particular paper edition.

Most people start at our website which has the main PG search facility: www.gutenberg.org.

This website includes information about Project Gutenberg™, including how to make donations to the Project Gutenberg Literary Archive Foundation, how to help produce our new eBooks, and how to subscribe to our email newsletter to hear about new eBooks.