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Adam Smith, Schumpeter
and the moderns

Heinz D. Kurz

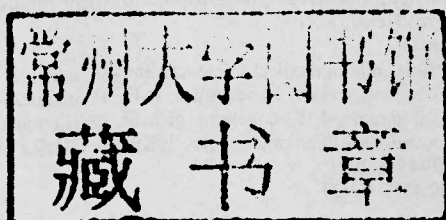
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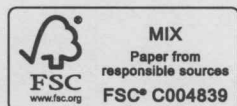
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Innovation, Knowledge and Growth

This book deals with the prime movers of socio-economic development, innovations and technical change, their origins, forms and effects. It contains a set of closely related chapters, some of which have been previously published as papers in scholarly journals.

The book deals first with the analyses of the classical economists Adam Smith, David Ricardo and Karl Marx, and with the role of endogenous technical change for the long-term development and growth of the economy. The emphasis is on the division of labour, the replacement of human power by machine power and increasing returns in large industry. Next, Schumpeter's view of the restlessness of capitalism is scrutinised with special emphasis on his view of the entrepreneur and on creative destruction. Then follows an in-depth treatment of new economically-useful knowledge in the modern theory of endogenous growth.

The book discusses the grand theme of innovation, knowledge and growth from a classical perspective and shows how the contributions of such diverse writers as Adam Smith, Schumpeter and the modern growth theorists can be fruitfully and coherently analysed from a higher standpoint. It also discusses how technical change can be dealt with in empirical studies using input-output analysis.

Heinz D. Kurz is Professor of Economics and Chair of the Graz Schumpeter Centre at the University of Graz, Austria.

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The paper ‘Joseph A. Schumpeter: an economist between Marx and Walras’ and the paper ‘On the growth of knowledge about the role of knowledge in economic growth: a critical assessment of recent literature on growth theory’ are based on essays originally published in German; see Kurz (2005) and Kurz (2011). I am grateful to Metropolis Verlag, Marburg (Germany), and to Duncker & Humblot, Berlin, for allowing me to bring out English versions of them. My thanks go to Keith Tribe, who kindly translated the two pieces.

References

- Kurz, H.D. (2005). *Joseph A. Schumpeter. Ein Sozialökonom zwischen Marx und Walras*. Marburg, Germany: Metropolis Verlag.
- Kurz, H.D. (2011). ‘Über das Wachstum im Wissen von der Rolle des Wissens im Wachstum. Eine kritische Bestandsaufnahme der neueren wachstumstheoretischen Literatur’, in H. Hagemann (ed.), *Wissen/The Knowledge Economy. Studien zur Entwicklung der ökonomischen Theorie*, vol. 115/XXVI, Berlin: Duncker & Humblot, pp. 211–46.

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1 Introduction

This volume contains a set of chapters I published during the past couple of years, which deal with a theme that is again high on the agenda in economics since the mid-1980s: the problem of innovation, knowledge and economic growth. It was at the centre of interest during the time of the classical economists from Adam Smith and David Ricardo to Karl Marx; it gave way largely to a concern with the static problem of resource allocation in early marginalist authors from William Stanley Jevons and Carl Menger to Léon Walras; it was rediscovered by Joseph Alois Schumpeter, who saw capitalism as a restless system that continuously generates economic, social and cultural change from within, epitomised in his famous formula of ‘creative destruction’; and it became again the focus of attention in more recent times in what was dubbed ‘new’ or ‘endogenous’ growth economics.

Closely related questions such as the following ones ought to be asked. What are the characteristic features of the different approaches to the problems at hand – classical, Schumpeterian and modern marginalist? Wherein do these approaches differ from one another? What are the roles of invention, innovation and imitation in the process of economic development and growth? Is there progress in our understanding of the phenomena under consideration? What is meant by ‘progress’, and how can it be measured? What are the benefits of the formalisation of economic ideas, what its costs? What is the meaning of ‘knowledge’ and related concepts? How can knowledge be measured? Etc. etc.

Any progress in the field of economic dynamics, as in any other field as well, needs time to take place and necessitates a comparison with earlier states of the subject. Hence, history matters, here the history of economic analysis. It is a characteristic feature of all chapters contained in this book that they blend concerns with economic theory and the history of economic thought. Paul Samuelson put forward a cogent argument in favour of studying the history of economic thought:

the higher prize [is] to get on with the subject’s advancement by utilizing and acknowledging whatever was already to be found in the literature, eschewing what Gunnar Myrdal acidly called ‘unnecessary Anglo-Saxon “originality”’. Then, if one could leap a cubit from those ethereal heights the fulfillment was the greater.

(Samuelson 1983: xxv)

2 Introduction

Unfortunately, ‘unnecessary Anglo-Saxon “originality”’ is still with us, but what according to Myrdal in the past has been local, in the meantime seems to have become global. One of the reasons of unnecessary originality is the fact that economists appear to know less and less about the history of their subject in general and even about the history of the sub-fields in which they specialise. In terms of David Lowenthal’s famous saying: ‘The past is a foreign country, where we come from’, one of the aims of this book is to bring back the past and compare it with the present in the field under consideration. This allows one to see better what has been achieved since the times of Adam Smith, which path the sub-discipline has taken, which problems have successfully been tackled and which not, which problems have disappeared from the research agenda not because they have been solved, which have newly entered it, etc.

1.1 Composition of the book

Chapter 2 deals with the treatment of technical progress, capital accumulation and income distribution in Adam Smith, David Ricardo and Karl Marx. It is argued that while Smith and Ricardo could not possibly have had a full picture of the role and different forms of ongoing technical change in the development of the capitalist economy, they and Marx deserve to be credited with having contributed to the elaboration of an analytical framework and concepts that allow us to describe and analyse almost *any* such technical change. In particular, they saw clearly that while some commodities (and kinds of work performed) were bound to disappear over time, becoming ‘obsolete’, others entered the stage, with the overall number of commodities, and thus variety, increasing. The approach they sought to elaborate thus was designed to capture the increasing variety and heterogeneity of goods, both consumer and capital good. They would in all probability have met with surprise and disbelief in the fact that later economic theorists thought able to deal with the problem of technical change and economic growth in terms of one-good models. It is also shown that the classical economists were far from downplaying the importance of technical progress and that Ricardo’s analysis was not overwhelmed, as is frequently contended, by a concern with diminishing returns in agriculture in combination with Malthus’s law of population. He repeatedly stressed that ‘we are happily yet in the progressive state, and may look forward to a long course of prosperity’, and that ‘it is difficult to say where the limit is at which you would cease to accumulate wealth and to derive profit from its employment’ (Ricardo 1951–1973, VII: 17 and IV: 179).

Chapter 3 provides a summary account of the life, work and consequences of Joseph Alois Schumpeter. The names of Karl Marx and Léon Walras mark the antipodes between which Schumpeter’s thinking and writing moved. He started out valuing Walras’s theory of general equilibrium as the ‘Magna Carta’ of economics. However, he recognised that it was not capable of dealing with the dynamic forces and anarchic tendencies of the system. The Walrasian system was populated by ‘boring equilibrium men’, hedonic utility maximisers eagerly seeking to optimally adjust to given constraints. It thus missed out the all-important