

As for the second idea mentioned above, i.e. “the tendency to regress to the mean”, this emerges in Scott’s book as the “particularly surprising conclusion” of his interesting and comprehensive discussion of Verdoorn’s, Kaldor’s and Fabricant’s laws. This conclusion is that “there is a tendency in a given economy over a given (long) period for labour productivity to grow at the same rate in all industries”. The regression to the mean is presented in this context as a result of this tendency and is explained in terms of the differential changes in output prices resulting from labour productivity growing in ‘backward’ industries (much) more slowly than in ‘forward’ industries. Since investment is attracted by those industries whose output prices increase faster than elsewhere, and since investment is the engine not only of growth but also of productivity growth, the final result of this chain reaction is that labour productivity tends “to regress to the mean” in ‘backward’ and in ‘forward’ industries alike.

A comment upon this idea of a tendency towards a uniform rate of labour productivity growth should start from the realization that this is exactly the opposite of what lies at the roots of the modern theory of non-proportional dynamics. Unfortunately, the author fails to set out a comprehensive criticism of the latter theory so that the reader is left with an unsatisfied curiosity about why labour productivity has been growing with a speed so different in, say, the haircut industry, the car industry and the computer industry from their different origins in time up to the automobiles and PCs of current vintage.

As for the third point mentioned above, i.e. the “abnormal-scraping argument”, this is put forward by Scott as a last-ditch effort to cope with the current inability to explain the *punctum dolens* of the second half of this century, i.e. the slow-down in productivity growth after 1973. Scott’s starting point here is Denison’s book *Trends in American Economic Growth 1929–1982* (Washington, 1985). He accepts the 14 factors that account for rather less than half the fall in total factor productivity growth, but rejects all but one (i.e. the misallocation of labour arising in the USA from the implementation of the Civil Rights Act of 1964) of the five factors considered as possible explanations for the remainder. Instead, he presents the “abnormally rapid obsolescence leading to abnormal scrapping of capital since 1973” as a new and most convincing factor. The “abnormal-scraping argument” is the chain of reasoning by which the author tries to substantiate this claim. Here, a chain of reasoning is indeed required for what the author sets out to prove is that the post-1973 scrapping was abnormal, not so much as a result of the exceptional supply shocks of the early 1970s, but because the productive capacity that was scrapped as a result of these shocks was still capable of earning positive quasi-rents at current prices. What made this *curiosum* possible was, in Scott’s complex view of the problem, the typical market structure of modern industrial economies, i.e. imperfect competition (with particular regard to its price inflexibility) in goods markets as well as in the labour market. In fact, in this type of market structure, oligopolists, always afraid of price wars, are inclined to cut capacity rather than prices, while trade unions, always afraid of losing members, prefer to preserve real wages for, say, 90% of the labour force rather than jobs for everybody.

A final observation that can be made with regard to this intriguing argument is that it helps us understand the slow-down in the growth rate of productive capacity (rather than of output) more than the slow-down in the growth rate of productivity. Unless one believes that Verdoorn’s law is really a law and that, moreover, it uninterruptedly cuts both ways.

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*Technological and Social Factors in Long Term Fluctuations*. Edited by MASSIMO DI MATTEO, RICHARD M. GOODWIN, and ALESSANDRO VERCELLI (Proceedings of a Conference held in Siena, Italy, December 1986), *Lecture Notes in Economics and Mathematical Systems*, Vol. 321 (New York: Springer Verlag, 1989. Pp. ix + 442. DM82 paperback. ISBN 3 540 50663 2).

The topic of long waves has been in the centre of economists' attention during the depression of the 1970s and 1980s. This led to a number of 'long wave conferences', which were held in Paris (1983), Siena (1983, 1986), Weimar (1985), Montpellier (1985), Novosibirsk (1988) and Brussels (1989). The papers in this volume were presented at the second Siena long wave conference in 1986.

The title of this volume does not mention 'long waves', but uses the more subtle expression of 'long run fluctuations'. While the term 'long cycles' (suggesting fixed periodicity and fixed amplitude of the movements) had been abandoned earlier, the term 'long waves' was generally used by those who wanted to stress that the long term economic growth path shows major, somewhat irregular fluctuations, in which the up- and downturns are endogenously connected to each other. Those (like Madisson) who stressed that there is no logical necessity for up- and downturns to be connected (by economic factors), rather used the term 'long term phases of economic development'. The term 'long run fluctuations' seems to be a sort of middle-way, capturing both interpretations stressing the endogenous character of up- and downturn and the more exogenous interpretations of 'phases of economic development'. This interpretation of the second part of the title fits the character of the papers quite well. In the book one finds papers which depart explicitly from the point of view that the endogenous explanation of up- and downturns is a main aim of the analysis. Other papers do not stress this feature or argue that long waves as endogenous phenomena do not exist. The other part of the title refers to the two main lines of thought along which (most of) the papers develop their arguments: social and technological factors behind the growth path of an economy. The papers on technological change and economic growth are mostly rooted in the work of Schumpeter. The second approach, stressing the influence of social factors (i.e. in most cases social *institutions*), has a less clear common base.

The first part of the book, consisting of eight papers, is labelled by the editors as 'Theoretical Approaches'. The second part is called 'Applied Analyses'. The third and last part is called 'Methodological and Historical Perspectives'. As is almost inevitable in a collection of conference papers, these titles do not cover the contents precisely. Nevertheless, the grouping of the papers under these headings seems to make some sense.

In Part 1 the papers by Goodwin and Gomulka are 'representatives' of the 'pure' Schumpeterian approach (stressing technological factors). Both apply mathematical models to describe the evolution of the economy driven by technological change. Goodwin adopts the closed economy point of view, while Gomulka explicitly takes an international point of view. Both contributions use dynamic mathematical methods (i.e. differential equations) to model the economy.

Most other papers in Part 1 are a kind of mix of the social (institutional) and technological points of view, although in most cases the strongest emphasis is on institutional factors. However, Screpanti's paper in this part does not fall under the headings 'technological' or 'social'. His paper consists of a review of possible explanations for long waves in the field of demography and sociology. Going through the rest of Part 1, the reader clearly sees that "it is . . . difficult to synthesize the [social] approach" (from the editors' introduction, p. vi). Although (social) institutions in one form or another play a role in the papers by Ferri, Boyer, Bowles and Arrighi and Vercelli, the arguments differ widely. Arrighi's paper takes the intensity of competition in the capitalist economy as the main factor explaining booms and depressions. Vercelli looks again at the choice of techniques and introduces the concepts of uncertainty and flexibility. Ferri shows how the 'gestation lag' in infrastructural investment can cause long term disruptions of a smooth consumption pattern. Boyer's paper develops the argument that a good match between the institutional set-up and the technological regime favours the economic growth rate, while a mismatch results in a depression. His paper is very much in the tradition of the so-called 'regulation' approach. Bowles looks at the influence of institutional factors on technological change from a microeconomic point of view, arguing that, in a capitalist system, the choice of techniques is inefficient from a macroeconomic point of view. These two latter papers are good examples of a mix of 'institutional' and 'technological' theories.

All together, the theoretical approaches presented in Part 1 give a good impression of the heterogeneity of research in the field of 'long waves' or 'long run fluctuations'. On the one hand, this heterogeneity, or in other words the absence of a strongly organized theoretical framework has the positive effect that new approaches may be pursued without being limited to a 'straightjacket', as, for example, the Marxian or neo-classical theories have sometimes proved to be. On the other hand, such a 'creative chaos' has the drawback that there is not much interaction between the different approaches, and that each approach is quite limited on itself. The whole theoretical picture that arises out of it is thus rich, but also very sketchy and not well integrated. In this respect, there could also have been a task for the editors of the volume.

Although Part 2 is labelled 'Applied Analyses', many original theoretical arguments may also be found here. Again, it seems useful to make a distinction between 'technology oriented' and 'institution oriented' papers. Menshikov and Klimenko's paper and Vasko's contribution refer to the 'technological approach', while the papers by Fontvieille, Tylecote, Grangeas and Pugno may be labelled as (mainly) 'social institutions oriented'. Gordon (himself one of the main contributors to the 'social' theories of long waves) tries to settle the empirical question which of the two theories fits the facts best.

Again, there are large differences between the scope and methods of the various authors. Menshikov and Klimenko formulate a mathematical model of long waves and then try to estimate the parameters, which are in turn used for simulation experiments. Their method is thus strictly of the econometric type. The results of their analysis seem to be quite shaky, something that can (partly) be explained by the limited availability of data. Other econometric-type approaches to the topic are presented by Gordon and Grangeas. Grangeas runs regressions describing the interaction between the cost of labour and economic depressions and upswings. Gordon presents (in mathematical terms) different forms of the Schumpeterian and social theories of long waves. He then uses data for the post-war period (i.e. a period shorter than one full wave) to test the different models. The outcome of his analysis is that, in almost all cases, the 'Social Structure of Accumulation' (the set of social institutional factors) has more explanatory power than the technological factors. This conclusion, as well as the introductory theoretical discussion in Gordon's paper, gives the reader the impression that Gordon is less willing to accept that the two different theoretical perspectives can fruitfully be combined than other authors (such as Freeman and Boyer) in this volume are. A methodological drawback of his analysis is that the data that he uses mainly consists of constructed indices, which are presented without a well documented description of the method of construction. Moreover, it is not clear in which way certain (arbitrary) steps in the construction process and the limited timespan of his data affect the results.

The other papers in this 'applied' part are of a more descriptive (as opposed to econometric) character. The aim of these papers is mainly to develop a theory supported by a description of historical events and processes. Vasko's contribution describes, in a very sketchy way, some of the issues in technological change and long waves, without a clear homogenous theoretical viewpoint. Tylecote discusses the influence of the long wave upon North-South relations, thus giving an explanation of the ongoing 'falling behind' of the South relative to the North. Fontvieille's paper is a (strict) Marxist interpretation of the 'regulation-school' argument, applied to the French coal-mining industry. He analyses the capital-labour relations using indicators such as the 'efficiency of past work' (i.e. capital goods) and the 'exploitation ratio'. Pugno's contribution consists of a long wave interpretation of the evidence against 'Bowley's law', which states that the share of labour in (national) income is more or less constant over time. Pugno's interpretation of the cyclical movement of the labour's share over time closely links up with the 'institutional' approach to long waves, such as the one presented in the articles by Boyer, Gordon and Fontvieille.

The third and last part of the book is labelled 'Methodological and Historical Perspectives'. This seems to be a label that has been used to group papers that clearly did

not fit the themes in the other two parts together with some other papers that clearly seem to belong to one of the previous two parts of the book, but for reasons of equal size distribution among the different parts could not be placed there. Lundvall's paper on institutional and technological factors behind international productivity differences is clearly related to Gomulka's paper in Part 1. Santarelli's paper, which gives an empirically inspired interpretation of the connection between 'technological paradigms' and 'financial systems' as driving forces behind the long wave, could certainly fit in well in Part 2. The same goes for Freeman's paper, which tries to make a comparison between the crises in the 1930s and 1980s from a combined institutional and Schumpeterian perspective.

The other papers in Part 3 indeed seem to be quite different from the topics dealt with in the rest of the volume. Rappoport and Reichlin present an econometric, methodological discussion on methods to detect cycles in time series, filtering out trends and cyclical movements. Hanappi presents an interpretation of the history of capitalism from a point of view wherein methodology and the history of economic thought play a large role. Di Matteo's paper gives an interpretation of the original work of Kondratiev on the long wave, which is not available in English. His exposition shows that Garvy's well-known interpretation of Kondratiev's original Russian text is open to discussion.

On the whole, this volume seems to be a useful collection of papers for the specialists in the field. However, the book is far from a useful (introductory) overview of the long wave debate (as it stood in 1986) for a non-specialist. For this latter purpose, the present volume basically lacks two things. First, a selection of papers could have been made. As it stands now, the book contains several papers that are mainly interesting for those who, because of their professional interest, want to read everything on the topic, for the sake of completeness. For an average reader, some of the papers will appear to be marginal or the empirical results not sufficient. Second, the editors could have tried to make the book a more coherent set of viewpoints. As it is now, no effort has been made to link the arguments presented in the different papers, except in the very brief four page introduction. Short references to other relevant papers in the volume, a separate introduction to each part and a conclusive summary might have been useful in this respect.

Of course, it is not the aim of the series in which the book appeared to publish a comprehensive overview of current debates. The aim is rather to report on the latest developments within a particular field. My feeling, however, is that a different way of publishing, along the lines sketched above, could have given these conference proceedings more value than has been done now.

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*Economic Development and World Debt.* Edited by H. W. SINGER and SOUMITRA SHARMA (London: Macmillan, 1989. Pp. xxv + 453. £65 hardback. ISBN 333 46553 9).

This large volume of 33 papers is the outcome of a conference held in September 1987 in the Faculty of Economics, Zagreb University, Yugoslavia. Like most conference volumes, the papers are of uneven quality. There is also little common ground, although they all focus on various aspects of the international debt problem. Moreover, with the rapidly changing international scene, even the 3 year gap between the publication of this book in late 1989 and its present review seems too large, as many of the problems of international debt already look somewhat different.

The book is in four parts. Part 1 has nine papers and deals with trade and growth in relation to international debt. Parts 2, 3 and 4 have eight papers each, dealing with financial system and exchange rate regimes, structural adjustments policies and country risk, respectively. Since it is impossible to review all the articles in each of these areas, the present reviewer can only try to give a very impressionistic account. The book starts with an article by Griffith Jones which emphasizes the obvious, but often neglected, fact that debt crisis management has been very effective in achieving the creditors' objective, but