

Chris Freeman and Francisco Louca: As times goes by. From the Industrial Revolutions to the Information Revolution.

Oxford University Press 2001, 407 pages

This is an unusual book, and a very important one too. It addresses “big issues” such as what the (theoretical) sources of the evolutionary approach are, and how this approach might be developed to be really helpful in understanding how the economy evolves through time. As if this was not enough it also offers a detailed analysis of how the global capitalist system has evolved from the times of the industrial revolution to the present.

The book is divided in two quite distinct parts (but – as we shall see - with a strong connection at a deeper level). The first, entitled “History and economics” is the theoretical part. It analyses the role of history in economic analysis (and in economic history in particular), discusses Schumpeter’s view on the subject and presents and analyses the works of Kondratiev and other long-wave researchers. It is argued that Schumpeter’s theorising was a bit paradoxical in nature since it was based on a simultaneous acceptance of equilibrium economics (“the circular flow”) and non-equilibrium dynamics (“development”). They stress, however, that Schumpeter himself confined his work to “development” and that he held the historical element to be crucial. The first part concludes by outlining the author’s approach to long run economic and social change that they – following Schumpeter – label “reasoned history”. The second part of the book applies this perspective to long run economic and social change. Capitalist development from the times of the industrial revolution to the present is divided in subsequent “Kondratiev Waves”, five in total, each of which is analysed in a separate chapter. This part (as the preceding one) also contains a separate introduction and conclusion, presenting the scheme of analysis in more detail, and focusing on some of the more general features that emerge through the discussion of the various “waves”. All this appears very well done, and there certainly is a lot of interesting stuff here for readers with quite different interests. Instead of going into more detail about the content of the various chapters, I will in the following do an attempt to present some of the general ideas and lessons that emerge from the book.

The book starts out by discussing the relationship between biological evolution, social evolution history and economics. Evolution is biology, it is argued, is understood as an open

(unpredictable) process, marked by surprise, change, mutation, bifurcation, feedback and crises. It is an irreversible process; the arrow of time cannot change. Social evolution, the authors argue, shares many of the same basic characteristics of openness and indeterminacy but adds a new dimension of intentional choice. Hence, in the view of the authors, there is a qualitative difference between biological and social evolution that makes any simple transplant of biological metaphors to the analysis of social developments methodologically suspect. On this point they side with Schumpeter who was also very critical towards attempts to apply perspectives or methods developed within the natural sciences to the analysis of social phenomena.

As noted the authors follow Schumpeter in defining economics as a historical science. The subject matter of economics, they argue, is intelligible only as “contextualized history”. However, although every historical incidence is in some sense unique, economic evolution is - in endorsement of Sombart – also postulated to have “recognizable patterns”. In particular, they argue that each capitalist epoch or “wave” can be analysed as the interplay (co-evolution) between different sub-systems. They identify five such systems, namely science, technology, economy, politics and culture, each with its own dynamics. This generates the possibility of mismatch between the various systems and, periodically, “radical institutional innovation”.

Although the authors postulate that they do not give primacy to any of these five systems, it is nevertheless true that the “technological system” plays a very important role in their account, may be because it is in this field that the authors have been able to detect some of the most stable “recurrent patterns”. One such pattern is the life cycle of a technological system, which the authors divide into six phases starting with the “laboratory-invention phase” and ending with “maturity”. Neither the early nor the late phases have major impacts on the economy, it is argued. Rather, it is in the intermediate phases, when the technological grows very fast (either by displacing older technologies or caring for new needs or both) that the economic effects are most manifest. The authors hold that compared to Schumpeter they put more emphasis on diffusion (which is assumed to yield the major economic effects) and less on the dating of innovations. They are also, it is argued, less concerned with “the heroic entrepreneur”, which they tend to see as an ideological figure. Instead they put more emphasis on organization and management (and changes in management systems).

The authors are of course acutely aware of the fact that not all technological systems have equally pervasive effects. Some, however, may be very important, such as - the authors argue

- ICT. The analysis of such effects in the book is based on an approach, initially suggested by Perez, that distinguishes between:

1. Key factors (cheap and universally available inputs),
2. Carrier branches (sectors or industries producing new or improved goods and services with the help of these inputs),
3. Organizational innovations needed to diffuse the new goods and services, which Perez calls “new technological styles” or “new techno-economic paradigms”,
4. The possibility of “mismatch” between technological opportunities and institutional requirements and conflicts about the design of the “regulatory regime”.

The authors associate this dynamics with the alleged phenomenon of “long waves”, the discussion of which is an important part of the book. I am not going to discuss the various pros and cons of this approach here. Suffice it to say that they do not adhere to the group of authors that argue that long “waves” needs to be verified by aggregate economic statistics (which arguably would be a challenging if at all possible task). Rather what they focus on is the qualitative aspect, i.e., qualitative changes that take place in historical time. This, however, implies that one may suggest different schemes (periods) depending on which qualitative features one choose to focus on. They note that there is a different way to look at this associated with the works of among others Chandler and von-Tunzelmann (three industrial revolutions) but do not discuss the merits (or lack of such) of these alternative approaches in much detail.

This is a very good and important book that is must reading for anyone interested in evolutionary economics and/or the relationship between history and economics. In addition you get a very well documented and argued interpretation of long run capitalist development from the industrial revolution to the present that will be a standard reference (and that probably will provoke a lot of discussion). However, and of no less importance, it is also provides a first rate contribution to the discussion of how evolutionary economics should (may) develop. For instance, it makes a number of important points on issues such as social and biological evolution, history and economics and system-thinking/applications that deserve to be central on the evolutionary agenda in the years to come.

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