

# Schumpeter's Evolutionary Economics

A Theoretical, Historical and Statistical  
Analysis of the Engine of Capitalism

Esben Sloth Andersen

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# 1

## Introduction

When the Austrian-American economist Joseph A. Schumpeter died in 1950, he had received many forms of recognition. He was Professor of Economics at the famous Harvard University in the USA; he was the most cited scholar in the whole field of economics (Samuelson, 1981a, 1); he had recently served as the President of the American Economic Association and had just been elected to become the first President of International Economic Association. This exceptional status was based on Schumpeter's contributions to all major parts of economics and to other social sciences, his all-encompassing network of scholarly contacts, and his ardent support for the new generation of ambitious economists. However, as pointed out by Paul Samuelson, Schumpeter was not satisfied with the status he received. According to Samuelson, who considered himself to have been both Schumpeter's friend and pupil, he was sceptical about his "Popeship" because this was not what he had strived for. From his youth, Schumpeter's main ambition had been to become one of the great economists, and he thought that such economists are not orthodox Popes, but radical scientific innovators. Since he did not succeed in his attempt to renew the science of economics, Samuelson (1981a, 1) suggested that Schumpeter "would have traded his Popeship for a Keynesian revolution". This does not mean that Schumpeter would have liked to promote an arbitrary scientific revolution. Instead, he wanted to trade his position within the economic establishment for an evolutionary-economic breakthrough, which he had tried to obtain throughout his academic life.

The decades since Schumpeter's death have clearly proven the low value of his Popeship. Like John Maynard Keynes, he was born in 1883, and they died within few years of each other; but there are crucial differences in the way posterity reacted to them. Keynes is commonly remembered as the major initiator of macroeconomic theory. The large extent to which modern economic theory has integrated and developed his problems and tools means that we seldom have to refer to him directly. Schumpeter obtained a quite different posthumous status. We economists have forgotten his Popeship of equilibrium economics, but we still maintain folklore about him as the most romantic and paradoxical of all economists. More importantly, we remember him for his vision of innovation and structural change within the economic system. Although we largely base our remembrance on a few striking formulations from the

most reader-friendly parts of his works, like a couple of chapters from *Capitalism, Socialism and Democracy*, he still serves important functions. First, Schumpeter represents our bad consciousness of not having treated in a convincing way the grand questions of economic evolution and the transformation of capitalism. Second, his incomplete analytical contributions serve as a challenge to apply the much-improved mathematics of evolution to reconsider his visionary accounts. Finally, since the great questions of the process of economic evolution are unlikely to become answered through isolated economic analysis, he points us to the hitherto largely unsolved problem of establishing a systematic collaboration between the different social sciences.

The evolutionary-economic breakthrough that Schumpeter hoped for is presently within sight; and similar breakthroughs might come about in sociology, political science, and elsewhere. This situation allows us to consider his wish of trading a Popeship for a scientific revolution in a new light. Actually, it has, for many researchers, become obvious that Schumpeter was an important pioneer. However, the more precise study of his contributions to the extension of the social sciences towards the analysis of evolutionary processes has not been easy. The difficulties, which will become clear from the present book, are largely related to the fact that he produced an immensely complex work. Furthermore, his work applies old-fashioned terminology and confronts the problems of past generations of researchers. Finally, he wrote in two languages, and some of his core contributions have not yet been translated from German. For these and other reasons, there is still much confusion about the nature of his work and about the degree to which it still represents a challenge for modern researchers. This is the background for the present account for the emergence and elaboration of Schumpeter's evolutionary economics, which is mainly based on reconstructive readings of his books. The main proposition is that he was a pioneer of a special form of evolutionary economics and that he wanted to add analogous forms of evolutionary sociology and evolutionary political science. Although his form of evolutionary analysis is not identical to the forms that are presently emerging, there is a large degree of compatibility (Fagerberg, 2003). Furthermore, the remaining incompatibility cannot only be considered the result of Schumpeter's idiosyncrasies. It also represents a challenge for present-day research.

### 1.1 The name of the game: 'evolutionary economics'

The core propositions of the present book are: (1) that Schumpeter's basic ambition was to complement equilibrium economics with an evolutionary economics that analyses capitalist economic evolution; and (2) that his major contributions to economics relate to his attempts to fulfil his

ambition. The arguments for the two propositions will bring us back to the works that he produced before the First World War. However, the fact that some of these works are still only available in German language is only one of the minor difficulties in developing the argument. The major obstacle is the terminological and conceptual problems that relate to the terms 'evolutionary' and 'evolution'. Although the clarification of these terms is a major theme throughout the present book, it is convenient to reach a minimum level of clarification from the very beginning. The works of the early Schumpeter do not supply us with such clarification. A major reason is that he developed his basic contribution at a time when the evolutionary approach, after an upswing in the nineteenth century, was facing an eclipse. The reaction against the inflated application of the evolutionary approach meant that during "the first few decades of the twentieth century evolution was a dirty word" and that "[e]volutionism as a theoretical approach ... was practiced or endorsed only at risk to one's intellectual career" (Sanderson, 1990, 45–6). This reaction was especially strong while Schumpeter used German language as his primary means of presenting his scientific contributions. It is in this context that we should interpret a remark that Schumpeter made in the radically revised and shortened second edition of his *Theorie der wirtschaftlichen Entwicklung*. Here he emphasised that

"we must be careful in dealing with the phenomenon of evolution [Entwicklungsphänomen] that we observe, still more with the concept in which we comprehend it, and most of all with the word by which we designate the concept[.] ... [A]ll the over-hasty and insufficiently founded generalisations in which the word [soziale Entwicklung] plays a part have led many of us to lose patience equally with the word, the concept, and the issue." (*Entwicklung II*, 88–9; cf. *Development*, 57–8)

The worries that Schumpeter, in 1926, formulated about the German word 'Entwicklung' re-emerged when he helped Redvers Opie in translating his magnum opus into English. Even the chosen title of the book—"The Theory of Economic Development"—was problematic. Schumpeter, quickly after the publication of *Development*, began to switch from the term 'economic development' to 'economic evolution'; and he used the latter term consistently in *Business Cycles* from 1939. Moreover, even while *The Theory of Economic Development* was being printed, he in May 1934 wrote a letter in which he called his book "The Theory of Economic Evolution" (*BL*, 267); and he accepted the French translation with the title *Théorie de l'évolution économique*, that is, without using the French word 'développement' (*S1935e*). Nevertheless, modern economists and sociologists still use term 'economic development' as the primary label for his theory. On this background, it is interesting to note that it is not the neces-

sary translation of his German text. In contrast to the situation in France and the English-speaking countries, speakers of German language in the first decades of the twentieth century largely used a single word for two concepts. 'Entwicklung', which etymologically means 'unwinding', covered both 'development' and 'evolution'.

The English word 'evolution' originates from the Latin 'evolutio'. It is related to the verb 'evolvere' that means 'unwinding' or 'unrolling'. The book of antiquity was a rolled volume of writing and its reading required a process of unrolling. The noun 'evolutio' was used to denote the process of reading through the unrolling of such a book. This background meant that the original usage of the English 'evolution' referred to goal-directed and pre-programmed processes. The same was the case for 'development'. This word arrived to England from France, where 'développement' referred to the process of unfolding. Then Darwin published his *Origin of Species* with its radically different account for change. As a result, the word 'evolution' started to obtain a new meaning; and it ended up denoting the unplanned process of the irreversible change of biological species, human languages, and the routines of social life. In contrast, 'development' kept the meaning that it had originally shared with 'evolution'. Although this division of labour between the two words arrived slowly, the distinction was relatively clear in the early 1930s. At that time, the best translation of the title of "*Theorie der wirtschaftlichen Entwicklung*" was "The Theory of Economic Evolution", that is, the title Schumpeter used in the mentioned letter from 1934. By the way, this letter commented on the fact that he—a foreigner—had got a paper (S1934a) included in a collection intended for courses in English style and composition.

The confusion that has emerged from the two possible translations of a single German word has today largely been overcome. It has become clear that the unplanned process of change described in Schumpeter's *The Theory of Economic Development* has nothing to do with the goal-directed and programmable processes of old-style developmental thinking about social change. Nevertheless, the choice of the words "Economic Development" for the title of this book has retarded the formulation of the evolutionary interpretation of Schumpeter's work significantly. In the 1930s, Schumpeter and his translator (Redvers Opie) missed an important opportunity for labelling the book in accordance with modern scientific terminology. The present book tries to undo their decision by translating all occurrences of 'Entwicklung' as 'evolution'—unless Schumpeter was clearly exploiting the ambiguity of German language to use the word in the meaning of 'development'. The importance of this decision is emphasised by the fact that Schumpeter predominantly wrote in German from the decade before World War I until he moved to the USA in 1932.

Schumpeter's early writings are characterised by another terminological problem that had largely been overcome in the 1926 edition of *The-*

*orie der wirtschaftlichen Entwicklung*, which was used for the production of *Development*. However, the terminological problem is obvious in the first edition of this book (from 1912) and in his programmatic account of the essence and limits of equilibrium economics (from 1908). In these two books and elsewhere, he used the term "Economic Statics" for what can roughly be called equilibrium economics and "Economic Dynamics" for the theory of economic evolution. Although the distinction between these branches of economics is crucial for his argument, he largely applied the original terms—Statics and Dynamics—in quotation marks and he pointed out that the terminology is "very unfortunate" (*Wesen*, 182). One of the problems is that the terminology was likely to create confusion, and this problem was to an overwhelming extent confirmed by a large literature that in the next decades tried to clarify the Statics–Dynamics dichotomy—but instead created increasing confusion. The problem was that the words 'statics' and 'dynamics' were used to denote a large number of concepts and that these concepts have often been very loosely defined. Therefore, Fritz Machlup (1959, 109) characterised them as "kaleidoscopic words". Just as children have used the old-fashioned tube with mirrors and coloured glass to produce a huge number of different patterns, economists have used the "kaleidoscope" of the static–dynamic dichotomy to develop a surprisingly large number of meanings. According to Machlup, the problem "is not that the division of economic analysis into Statics and Dynamics makes *no* sense, but that it makes *too many* senses". Although the clarification of the senses in which Schumpeter used the terms "Economic Statics" and "Economic Dynamics" is an important theme of the present book, their translation into 'equilibrium economics' and 'evolutionary economics' may serve as a preliminary solution.

It is only after we have solved the major problems of terminology that it becomes clear that the evolutionary interpretation of Schumpeter's works has been provided by himself. Actually, we can derive most of this interpretation from a couple of sentences in his first book from 1908—the untranslated *Wesen und Hauptinhalt der theoretischen Nationalökonomie*. In this book on the essence and main contents of theoretical economics, he emphasised the need of a strict division of labour between works in the two fundamental fields of economics:

"Statics [equilibrium economics] and Dynamics [evolutionary economics] are completely different fields; they concern not only different problems but also different methods and different materials. They are not two chapters of one and the same theoretical building but two completely independent buildings. Only Statics [equilibrium economics] has hitherto been somewhat satisfactorily worked up and we essentially only deal with it in this book. Dynamics [evolutionary economics] is still in its beginnings, is a 'land of the fu-

ture’.” (*Wesen*, 182–3)

Although Schumpeter’s first book focussed on equilibrium economics, its purpose was not just to propose a reform plan for this branch of economics. On the contrary, the problems, methods, and materials that he reserved for evolutionary economics were those that, from the very beginning, engaged him as a researcher. He actually throughout *Wesen* pointed at this branch. He did so by repeatedly emphasising what concepts equilibrium economics cannot really contain and what problems it cannot solve. This negative definition of evolutionary economics as covering parts of the residual of concepts and problems left over by equilibrium economics was followed by a positive definition. This definition is most clearly stated in *Entwicklung I*—where the analysis of capitalist economic evolution is performed in terms of the concepts of capital, entrepreneurial profit, interest, credit, and business cycles. Together, these two books (*Wesen* and *Entwicklung I*) provided Schumpeter with the research programme that would engage him for the rest of his life. They demonstrate that he did not want to obtain a “Popeship” by working within the already-defined equilibrium economics but strived for the honour of being the pioneer of a complementary and very important branch of economics.

Schumpeter’s research programme depended on his decomposition of theoretical economics into two logically distinguishable branches: equilibrium economics and evolutionary economics. This distinction was easy to make in the first decade of the twentieth century. At that time evolutionary economics consisted only of loose sketches; and the predominant neoclassical economics could largely be reduced to an equilibrium economics that included the processes of re-establishing equilibrium after exogenous disturbance. During Schumpeter’s academic life the distinction apparently became more blurred because equilibrium economics became extended with analyses of economic growth and business cycles. However, Schumpeter tended to reject these extensions as unrealistic substitutes for the evolutionary economic analysis of the long-term transformation of capitalist economies. This topic provided the main contents of his scientific contribution.

## 1.2 Schumpeter’s evolutionary pivot

The study of Schumpeter’s work is made difficult by the way it was published. We nowadays normally present the results of our research in scientific journals; so it is an obvious strategy to browse his 200 papers (see the list starting on page 449) in order to find accounts for his core scientific contributions. This strategy largely fails, however. Contrary to today’s habits, he followed the old-fashioned rule that the size of a publication

should reflect its scientific importance. His smaller papers are normally made for the occasion, his longer papers are presenting more ambitious research, and his books present basic scientific contributions. Since these books are large and complex, it is also natural to browse them to find a few core pages that summarise his main contributions. Unfortunately, this strategy also fails. Schumpeter designed the books of his youth in a complementary way; and his later books contain extensions, corrections and perspectives. Therefore, we can to some extent reduce the reconstructive task to the provision of an understanding of his books as a more or less integrated whole.

An obvious strategy is to study Schumpeter's books in chronological order. This strategy can be improved by Yuichi Shionoya's (1997, 16, 23) distinction between Schumpeter's "early trilogy" and his "later trilogy". The early trilogy consists of the untranslated *Das Wesen und der Hauptinhalt der theoretischen Nationalökonomie* (1908); *Theorie der wirtschaftlichen Entwicklung* (1912), which in modified form was published in 1934 as *The Theory of Economic Development*; and *Economic Doctrine and Method* (1914). The later trilogy consists of *Business Cycles* (1939); *Capitalism, Socialism and Democracy* (1942); and *History of Economic Analysis*, which was published posthumously in 1954. Although the treatments of these books in several biographical accounts follow this approach, it is neither used by Shionoya nor by the present book. Shionoya's (1997) *Schumpeter and the Idea of Social Science* assumes that his work can be treated as a whole; and this assumption allows Shionoya to arrange the analysis of the different parts of the work freely. The present account is more constrained by chronology. The background for combining "rational reconstruction" and "historical reconstruction" is that Schumpeter's evolutionary economics can hardly be understood sufficiently without considering the way in which it emerged and was later developed. One of the implications is that Mark Blaug's (1996) strategy of reconstructing the works of the great economists of the past by means of the tools of present-day economics is insufficient for handling the case of Schumpeter.

The present book's combination of historical and rational reconstruction suggests that it has to be based on a grouping of Schumpeter's major books. A possible grouping is provided by Shionoya's idea that *Wesen*, *Entwicklung I/Development*, and *Doctrine* are the early trilogy while *Cycles*, *Capitalism*, and *History* are the later trilogy. However, this grouping does not suit the present purposes for at least three reasons. First, although *Doctrine* has been published as an independent book in English, it is really a huge entry commissioned by Max Weber for an extensive handbook of economics in the broad sense. Furthermore, it can, for most purposes, be considered as having been replaced by *History*. Second, *History* is so different from the other books that it is best treated separately as a kind of postscript to the whole of Schumpeter's work. Third, Shionoya

has been effective in demonstrating that *Entwicklung I* and *Development* come close to being two different books. For these and other reasons, the present book does not apply the partitioning in an early trilogy and a later trilogy. Instead, the basic architecture of Schumpeter's work can be described in terms of three sets of, partly unfinished, books:

1. The two programmatic books. Schumpeter presented his evolutionary research programme of *Wesen* and *Entwicklung I*. These two books were originally conceived as a two-volume book; but their basic approaches ended up as being different. *Wesen* had announced Schumpeter's evolutionary theory by studying the narrow limits of the non-evolutionary approach and pointing towards a "dynamic" complement. *Entwicklung I* could not present this complement in terms of a new set of well-defined analytical tools. It instead presented the dichotomy between routinised behaviour and innovative behaviour and sketched out how this dichotomy could be used to explain important economic problems. The book even suggested that the dichotomy could be applied for analysing the evolutionary process of change in any sector of social life.
2. The evolutionary trilogy. Schumpeter elaborated his evolutionary theory in *Development*, *Cycles*, and *Capitalism*. According to Rendigs Fels (1964, viii), it is this "trilogy setting forth 'the Schumpeterian System' ". We have already noted that *Development* is distinct from *Entwicklung I*. It represents the beginning of Schumpeter's attempt to make his evolutionary theory operational. This attempt is further developed in the first 200 pages of *Cycles*. The rest of this book can be seen as the application of the evolutionary theory for the analysis of the waveform history of capitalist economic evolution. This analysis brought Schumpeter far beyond the limits of the economic system. His solution was to return to his early idea of a general theory of social evolution. The results of this return are presented in *Capitalism*.
3. Works in progress. The present book tries to demonstrate that all Schumpeter's major works can best be considered works in progress. When he died in 1950, he nevertheless left unfinished not only *History*, but also a couple of other research projects that are even more important for the understanding of his evolutionary economics. First, he tried to promote the efforts of *Cycles* to combine theory with the history and statistics of capitalist economic evolution. Second, he wanted to complement *Wesen* with a book on the analytical tools available for the formalisation of evolutionary theory (as well as equilibrium economics). Third, he actually finished most of his *History*. From the perspective of the present book, it

is important to note that the manuscript provides an evolutionary interpretation of the history of economic analysis. Furthermore, an implicit theme of *History* is why the science of economics has not expanded to include a complementary analysis of economic evolution. The explanation is apparently that adequate analytical tools had not been provided by the time of Schumpeter's death.

The hints of the evolutionary interpretation of these three sets of books are rather abstract. There is, however, an easy way of obtaining an impression of major parts of the contents of Schumpeter's books. It is to exploit his tendency to mirror himself in the work of other great researchers. Actually, Schumpeter's description of the essence of the contribution of a great economist and social scientist also serves to characterise major parts of his own contribution:

1. "His topic was capitalist evolution. Everything he ever wrote, even his scheme of a stationary society, was written to elucidate this topic" (*History*, 1131).
2. "[H]e was essentially period-bound as a theoretical technician" (*History*, 391).
3. Nevertheless, "the grand vision of an immanent evolution of the economic process ... remains after the most vigorous criticism has done its worst" (*History*, 441).

Although Schumpeter used these formulations to characterise the contribution of Karl Marx, they can even better be used for his own work. The reason is that Marxian analysis mixes the idea of unfolding development with the idea of unpredictable evolutionary transformation to a much larger degree than Schumpeter did. If we leave the problem of the full clarification of the Schumpeterian meaning of the term 'evolution' to the rest of the present book, the above quotations provide us with three rough propositions about his work.

The first proposition is, of course, exaggerated if we take the phrase "[e]verything he ever wrote" too literally. Many of Schumpeter's minor writings, as well as major parts of *History*, reflect his position as a university professor who, apart from his evolutionary research, had to teach and organise economics in general (see the classification of Schumpeter's works based on subjects, which starts on page 425). We, however, should take seriously the proposition that he designed apparently non-evolutionary parts of works like *The Theory of Economic Development* and *Business Cycles* as an integrated part of his analysis of the capitalist process of economic evolution. For instance, he clearly considered his model of the "circular flow" in a non-changing economy as a part of his large-scale development of evolutionary modelling.

The second proposition concerns the influence of the available analytical tools on Schumpeter's theoretical development. We have already seen that he missed the tool that consists in a solid terminology. This fact had consequences for not only the spread of his theory, but also his development of it. His major tools of thought, however, were provided by neoclassical economics, and they were quite inadequate for the development of his evolutionary modelling. Actually, his research was seriously hampered—just as Marx's work had been constrained by the use of the analytical apparatus of classical economics. To overcome this problem, Schumpeter searched in vain for "a new apparatus [that] poses and solves problems for which the older authors could hardly have found answers even if they had been aware of them" (*History*, 39). The failure of this search largely explains why Schumpeter's evolutionary research programme did not really succeed during his lifetime: He simply lacked the conceptual, mathematical and statistical tools needed for expressing and developing his vision of economic evolution. To be more precise, Schumpeter did formulate simple analytical models for handling innovative change of the economic system; but he never developed them into full-blown models that could open up the realm of economic evolution for systematic research by a large group of researchers.

The third proposition emphasises that it is possible to discern a pre-analytic "vision" of evolutionary change that is only imperfectly represented by formal evolutionary analysis. Although Schumpeter's vision of capitalist economic evolution cannot be counted as a scientific contribution, it inspired both him and subsequent researchers to make such contributions. His core vision seems to have been developed in polite opposition to Léon Walras's model of general economic equilibrium—especially by reinterpreting the concepts of the entrepreneur and economic equilibrium. However, his vision of a "magnificent dynamics" (Baumol, 1959, Ch. 3) can even better be understood in its opposition to Marxism. What Schumpeter responded to was not Marxian economics in the narrow sense, but the evolutionary vision and the broad research problems confronted by Marx. Schumpeter can be described as the sole economist in the first half of the twentieth century whose thought and analysis "turned upon evolution" (*History*, 436). Since Marx was the sole author of the past who could be considered as having had a similar evolutionary pivot for his work, he represented an important challenge for Schumpeter's research.

Schumpeter focussed on the mechanisms of economic and social evolution under capitalist conditions. His vision of these mechanisms sees all parts of life in a capitalist society as characterised by two opposite forces. On the one hand, most people wish to enter the different aspects of social life in a routinised manner. Thereby, such people contribute to the functioning of society by giving it an important degree of predictabil-

ity. They are thus, in a certain sense, the pillars of society. On the other hand, there exist people who do not like fixed routines and who have the capability and will to renew these routines. These pioneers, or innovators, create innovative firms, new art forms, and novel political parties. In economic affairs, the innovative entrepreneurs need credit to obtain profit from their innovative projects. The successful projects give rise to extraordinary incomes for their initiators and many other agents. However, these incomes will sooner or later disappear because of the diffusion of the innovations and/or because of the emergence of new innovations. Both in the economy and in other spheres of social life, these innovations emerge in waves. Schumpeter's basic reasons are that the efforts of the innovators presuppose that most of social life is more or less predictable and that the room for successful innovative activities in any particular period is quite limited. The more innovators, the more difficult was the situation for the next innovator with respect to resources and predictability. Things have to settle down to ordinary routine before further innovation can take place. Thus, the expansion and transformation of the routine economy tends to emerge in waves. Through a series of such innovative bursts, the evolution of the capitalist routine system takes place.

The Schumpeterian "process of industrial mutation" thus includes "revolutions" that "occur in discrete rushes which are separated from each other by spans of comparative quiet"; this means that there "always is either revolution or absorption of the results of revolution" (*Capitalism*, 83n). His formulations suggest that he was envisaging a process of change that is able to stir the imagination and emotions of both economic actors and researchers deeply. He expressed his vision of this dramatic process by means of a basic analytical model or "scheme" that apparently tamed the drama. However, the drama is just below the surface of the scheme. Actually, several of his contemporaries suggested that Schumpeter had constructed a semi-formalised epic of a sequence of heroes whose innovations transform a society that otherwise tends to produce dull routine. Nevertheless, the semi-formalised scheme helped him develop specific theories and models, and they in turn helped him organise the complex facts of economic evolution. To function in this way, his basic scheme and his concrete models needed to make assumptions that were not part of the vision. More specifically, the purpose of Schumpeter's assumptions was to allow an untraditional form of equilibrium analysis. His concept of equilibrium implies that the evolutionary process has come to a temporary halt, and this concept allowed him to study evolution in well-defined steps. In the simplest case, the innovative activities emerge from a routine system characterised by this type of equilibrium, and after the implementation of the innovations, a new equilibrated routine system emerges. Let us consider the case of long-term economic evolution for which we can describe Schumpeter's basic analytical scheme in the following way:

- Initial equilibrium: We start from an economic system in which evolution has come to a halt so that it is based on solid routine behaviour. This system is assumed to have found an equilibrium that allows the economic agents to operate year after year in their accustomed ways.
- Economic innovation: The initial equilibrium breaks down when a minority of innovators renews some of the routines. Under capitalist conditions, a strong credit system helps these innovators—the Schumpeterian entrepreneurs who establish new firms.
- Creative destruction and renewed equilibrium: After a competitive struggle between agents related to old and new routines, a renewed and well-established routine system emerges.
- Long-term economic evolution: The renewed equilibrium forms the basis for another phase of disturbing innovative activity. The long-term economic evolution of the routine system consists of a series of routinised equilibria and innovative rebellions against these equilibria.

This scheme of punctuated equilibria cannot be interpreted as reflecting a form of developmentalism in Schumpeter's thinking. The reason is that he did not assume that the renewed equilibrium was the deterministic result of the initial equilibrium, not even if we knew the innovation that disturbed it. The scheme is rather reflecting a strategy for analysing the immensely complex process of evolution. This strategy might appear as an extended form of comparative-static analysis, but we should not overlook that Schumpeter is applying a very untraditional concept of equilibrium for his theory of waveform economic evolution. The initial equilibrium has not come about by the deliberations of actors with perfect foresight and flexible behaviour. Instead, it is the outcome of a process of bankruptcy, job destruction, and stressful learning.

According to Schumpeter, the actors with vested interests in an equilibrium—in which evolution has temporarily come to a halt—consider economic evolution as the process of the repeated destruction of their routinised positions. Therefore, they strongly oppose a repetition of this painful process by a new wave of innovation. Their power positions largely determine the speed of replacement of old routines by new routines “in the perennial gale of creative destruction” (*Capitalism*, 84). In the feudal economies of Europe, the opponents of “creative destruction” normally had the upper hand, and the result was that economic evolution for long periods came to a halt. In contrast, capitalism in its classical period did not allow such evolutionary stasis. The Schumpeterian entrepreneurs did not have to consider the social costs of their activities, so there was a relatively unhindered movement of the economic

frontier. This lack of power of the carriers of old routines did not hinder their resentment, however, and even classical capitalism included the repeated emergence of social and political movements that were either plainly against “creative destruction” or for a redistribution of the gains from this process.

The short description of the application of Schumpeter's analytical scheme for the analysis of the conflicts of capitalist economic evolution might suggest that he was solely an economic sociologist who did not think in terms of basic economic concepts. This impression is wrong. However, he changed the economic concepts so that they could serve his emphasis on the process of innovative change of the economic system. Actually, he designed the whole of his theory of economic evolution with a single “analytic intention, namely, the intention to make the facts of innovation the basis of our model of the process of economic change” (*Cycles*, 87; *Cycles Abr.*, 62). This is obvious from the following battery of definitions:

- Innovation: “we simply define innovation as the setting up of a new production function” (*Cycles*, 87; *Cycles Abr.*, 62).
- Entrepreneur: “For actions which consist in carrying out innovations we reserve the term Enterprise; the individuals who carry them out we call Entrepreneurs” (*Cycles*, 102; *Cycles Abr.*, 77).
- Profit: “an entrepreneur who ... carries out an innovation ... [receives] Entrepreneur's Profit, or simply Profit” (*Cycles*, 104–5; *Cycles Abr.*, 79).
- Credit “is essentially the creation of purchasing power for the purpose of transferring it to the entrepreneur” (*Development*, 107).
- Capital is “that sum of means of payment which is available at any moment for transference to entrepreneurs” (*Development*, 122; emphasis removed).
- Business cycles: “innovations would suffice to produce alternating prosperities and depressions” (*Cycles*, 223; *Cycles Abr.*, 115).
- Economic evolution: “The changes in the economic process brought about by innovation, together with all their effects, and the response to them by the economic system, we shall designate by the term Economic Evolution” (*Cycles*, 86; *Cycles Abr.*, 61).
- Capitalism “is that form of private property economy in which innovations are carried out by borrowed money, which in general, though not by logical necessity, implies credit creation” (*Cycles*, 223; *Cycles Abr.*, 179–80).

- Capitalist evolution is “economic evolution as conditioning, and being conditioned by, the institutional pattern of bourgeois society” (*Cycles*, 304; *Cycles Abr.*, 202).

This list of definitions serves to emphasise that everything in Schumpeter’s evolutionary economics turns on his definition of innovation. This definition—innovation as the introduction of a new production function—presupposes a routine system in which the notion of innovative jumps is well-defined. Schumpeter normally presupposed a very special kind of evolutionary process that has more similarities with the biological theory of “punctuated equilibria” (Gould, 2002) than with gradualist accounts for biological evolution or economic evolution. Such an evolutionary process takes its starting point in an equilibrated system in which novelty is very difficult to introduce; but when a radical innovation succeeds, it promotes a cascade of further innovations before the system settles to a new equilibrated state. Schumpeter’s reason for applying this approach was largely analytical, so we may speak of his ‘methodological saltationism’. While Marshall’s (1961) *Principles* had the motto “*Natura non facit saltum*” (Nature does not make jumps), Schumpeter’s motto for his evolutionary analysis was obviously *Natura facit saltus*—Nature does make (sudden) jumps. It was by means of this methodology that he could most easily introduce his novel versions of the concepts of entrepreneurship, profit, credit, capital and capitalism. Furthermore, he could use a generalised version of the methodology when he turned to the study of the evolution of social norms, politics, art and the sciences. In his general theory of evolution in all the areas of social life, he needed broader concepts of innovation, entrepreneurship, and evolution; and he did not use concepts like profit, credit, and capital. We, nevertheless, shall see that the basic features of the different evolutionary processes are the same.

The transformation of Schumpeter’s “magnificent dynamics” to solid evolutionary analysis was strongly constrained by the available analytical tools of neoclassical economics. Nevertheless, he hardly considered it paradoxical that he promoted the use of these tools through his teaching. According to the analyses in his two first books (in 1908 and 1912), the full modernisation of the science of economics required a division of labour between two separate and complementary branches of economic analysis. The non-evolutionary branch should promote a reformed neoclassical economics. This branch was clearly teachable and it also provided relatively predictable research projects for graduate students. In contrast, the evolutionary branch of economic analysis was hardly teachable during Schumpeter’s academic life. Furthermore, it was characterised by very difficult and risky research topics. Therefore, he saw no paradox in serving one branch by his teaching and the other branch through his research.

Schumpeter’s double strategy for economics as a science required a mutual recognition of the peculiarities of the two core branches of eco-

nomic analysis. On the one hand, an evolutionary researcher should recognise that modern neoclassical economics deals with the core issue of understanding and managing economic systems at given levels of evolution. On the other hand, non-evolutionary researchers should recognise that some of the topics that were traditionally treated by them should be left for evolutionary economics. This mutual recognition was not made easy by Schumpeter's rejection of the possibility of the long and gradual march from statics toward the "Mecca" of evolutionary economics, which had been suggested by Alfred Marshall. Furthermore, Schumpeter argued as if his evolutionary economics was the only way of handling adequately core economic phenomena like profit, credit, capital, and the business cycle. It would probably have been easier for him to obtain serious attention if he had paid more respect to alternative approaches to economic evolution. It might also have helped him to make the more modest claim that his type of evolutionary analysis allows a novel and, perhaps, deeper analysis of central aspects of core economic phenomena.

### 1.3 Alternative images of Schumpeter's work

The starting point for the Schumpeter studies that emerged immediately after his death (see Harris, 1951b) can best be described by the intellectual situation of his many students at Harvard University in the 1930s and 1940s. One of them, Robert Heilbroner (1983, 238), wrote:

"No one ever knew quite what to make of this small, dark, aristocratic man with a taste for dramatic prose and theatrical gestures. . . . Everyone agreed that he was brilliant—and perplexing. His students at Harvard complained that he was never predictable, and they were entirely right. . . . [They] had to reconcile the fact that he was the most 'hopeless' of conservatives and at the same time an admirer of Marxist economics; a sarcastic critic of the critics of capitalism, and yet its severest critic himself; a scoffer of those who fussed over every sign of trouble in the economy, and himself a diagnostician of its failing health."

This description points out that his students largely regarded Schumpeter conflicting opinions as reflecting his taste for paradox and conspicuous performance. Thus, his students largely missed the point that the perplexing standpoints are typical of a serious and broadly interested explorer of capitalist evolution. They were not seriously interested in complex evolutionary issues; and Schumpeter did not try to change the situation by teaching about his core topic and its difficulties. His teaching strategy was to stimulate students to work based on the most recent and advanced research results of modern economics; and he never directly

included his own theories and their real background. As another former student remarked, the “unforgivable omission” in Schumpeter’s otherwise excellent—and very demanding—lectures was that “his students never heard a word of Schumpeterian economics” (Smithies, 1950, 633). Since important parts of his work were difficult to obtain and only available in German language, this meant that most of his contemporaries had difficulties in seeing the Schumpeterian wood for all his individual trees.

The incoherence of the efforts to interpret Schumpeter’s work reflects its scale and scope as well as the fact that he did not create a school of economics. Actually, he actively opposed the formation of a closely knit group of followers: “I have never tried to bring about a Schumpeter school. There is none and it ought not to exist” (*S1932b*, 600). His ambition was “not to close doors but to open them”. This ambition has proved fruitful for the development of economics as a science since he pushed his many research students and other research contacts in the directions that they had chosen themselves. For instance, he promoted the work of Paul Samuelson on the foundations of modern economics, Nicolas Georgescu-Roegen on even more foundational issues, Ragnar Frisch on the establishment of econometrics, James Tobin on macroeconomics, Paul Sweezy on Marxian economics, and Hans Singer on development economics. He also promoted the collective efforts to modernise non-evolutionary economics and to organise econometrics. However, he hardly ever tried to promote directly his own form of evolutionary economic theory and its potential extension with an evolutionary econometrics.

The search for Schumpeter’s core contribution was difficult even for memorialists with mastery of his complex background and of his two main languages (English and German). Furthermore, when they found his evolutionary core, they were sceptical about claiming it the reason for his greatness. For instance, the Austrian-American economist Gottfried Haberler was excellently endowed to characterise the scientific contribution of his long-time friend and Harvard colleague. Nevertheless, it was not in terms of a core contribution that Haberler (1950, 333) substantiated Schumpeter’s claim for greatness. Instead, he respected Schumpeter as a highly talented and resourceful personality—and as a man who was not afraid of becoming a member of the smallest possible minority. Thus Haberler (1950, 344) wrote: “His independence was not a pose. One could truly say of him what Nietzsche said about Schopenhauer: ‘Seht ihn nur an—Niemandem war er untertan.’” The translation is: “Look at him—he was mastered by no one”. This formulation was the highest possible praise that could be given in the intellectual culture of the old Austria in the beginning of the twentieth century, which was the background of both Schumpeter and Haberler (see Janik and Toulmin, 1973). The praise was restricted, however. Austrian intellectuals knew that Nietzsche praised Schopenhauer as a great personality while rejecting his work: “Was er

lehrte, ist abgetan"—what he taught is past history. Haberler omitted this part of the characterisation from his memorial; but he gave the reference so that everyone could look it up. Therefore, he was implicitly suggesting that the future could not build on Schumpeter's work.

Paul Samuelson had an image of Schumpeter that was close to that of Haberler; but he later added that Schumpeter was not satisfied with combining a great vision with minor contributions to a surprisingly large number of scientific fields. According to Samuelson (1981b, 20),

"Schumpeter was a universalist in economics. Mention a field in the subject of political economy, and you will find his name already established there: economic theory, macroeconomic business cycles, methodology, econometrics, Marxian economics, economic history, *Dogmengeschichte* [history of economic thought]—the list is only countable finite. ... As he himself might put it, 'This is a remarkable performance.' It is one that ought to have brought him satisfaction and fulfilment. But ... [t]he Wagnerian hero does not strive to be a Jack-of-all-trades".

Schumpeter had definitely not strived for a "Popeship" of economics that was earned by a "Jack-of-all-trades", and both Samuelson and Haberler would probably have agreed that this is not the whole story. The reason why we commemorate and study Schumpeter is not only that he was a strange and great man, but also that what he taught about a scientific 'revolution' has not yet been carried out. This problem has become increasingly recognised because we today seem to have overexploited the non-evolutionary Walrasian paradigm and because new evolutionary concepts—as well as new evolutionary mathematics and statistics—seem to provide the tools needed for moving beyond Schumpeter's evolutionary economics. In this situation, his efforts to analyse capitalist economic evolution become just as fascinating as his life. Schumpeter *was* able to perform many kinds of work, but this versatility largely expressed the quest for *one* great goal that is worthy of a Wagner-style romantic hero.

Any ambitious study of Schumpeter's work has to confront important methodological issues; and these issues are an important theme in Yuichi Shionoya's *Schumpeter and the Idea of Social Science: A Metatheoretical Study*. Shionoya (1997, xi) emphasised that "we must consider all of his work ... rather than reading him in snatches". The assumption is that "Schumpeter's thinking can be reconstructed as a paradigm" (p. xii). The major results of Shionoya's reconstruction is that Schumpeter's research programme was that of a "universal social science" and that he implemented it by means of instrumentalist methodology. In his response, Mário Moura (2002, 819) suggested that this proposition represents the wrong assumption "that there is a Schumpeterian essence". Moura (p. 805) also summarised the result of this assumption:

“You are somewhat confused. Having consulted Schumpeter’s major works and the literature devoted to his writings, you find (a) that it is often the case that interpreters present contrasting views on him and (b) that almost invariably there exists textual support for their contrasting theses. In fact, you are beginning to wonder whether you are ever going to be able to *understand* Schumpeter. This could demand that you study his entire work—a considerable enterprise, and the end of which it could be that you remain confused.”

According to Moura, the problem is that the interpreters of Schumpeter base their interpretations on the assumption that Schumpeter produced consistent results. In Shionoya’s case these results seem to be interpreted as the outcomes of Schumpeter’s consistent use of a consistent instrumentalist methodology. Moura suggests that the real task of metatheoretical reconstruction is to explain why pervasive tensions and inconsistencies emerged in Schumpeter’s work. The abstract explanation is that there is an incompatibility between the Schumpeterian world view and the world view underlying the scientific tools that he used. Schumpeter accepted theories that presuppose closed systems, but he wanted to study an open-ended social system characterised by innovation and entrepreneurship. Although this alternative interpretation is a useful complement to Shionoya’s reconstruction, it is hardly characterised by a deep understanding of the precise nature of the challenges that Schumpeter had to confront in his evolutionary research. By dramatising his inconsistency through metatheoretical reconstruction, Moura might actually reinforce the opinion of the majority of economists that methodological and ontological discourse on their work is likely to create more heat than light. It might also support their tendency to take refuge in pragmatic instrumentalism—as Schumpeter seems to have done.

Although Schumpeter’s instrumentalism is a major theme in Shionoya’s book, his main emphasis is put on the interpretation of Schumpeter as having a fundamental idea of a universal social science. This interpretation of Schumpeter’s work seems to be different from the interpretation of the present book. Actually, the phrase ‘the evolutionary interpretation of Schumpeter’ was coined by Shionoya to emphasise that other interpretations are available. His own institutionalist interpretation of Schumpeter becomes especially clear if we consider parts of his recent collection of papers (Shionoya, 2005) as well as his review of *The Contribution of Joseph Schumpeter to Economics*, edited by Richard Arena and Cécile Dangel-Hagnauer (2002). According to Shionoya’s (2003, 604–5) review, the mission of this volume “is to resist the currently dominant [evolutionary] interpretation of Schumpeter” by an “institutionalist interpretation” that emphasises his promotion of social science in general. Shionoya is probably right that the predominant viewpoint among modern economists is that Schumpeter can better be characterised as an evo-

lutionist than as an institutionalist. However, although this viewpoint might be the “currently dominant interpretation”, it is not dominating the book-length accounts for Schumpeter’s work. On the contrary, the dialogue is seriously hampered because it is hardly possible to find a satisfactory exposition of the evolutionary interpretation of this work. The present book tries to remedy this problem. Since the development of the evolutionary interpretation of Schumpeter is difficult, there will be very little room for returning to the alternative images of his work. Therefore, readers interested in exploring other interpretations and in determining the limitations of the present evolutionary interpretation will have to consult the broad Schumpeter literature (see Appendix B).

#### 1.4 The structure of the present book

As already suggested, the study of Schumpeter’s work can largely concentrate on his major books. If we want to interpret his research efforts through a combination of historical reconstruction and rational reconstruction, we need to group these books. The grouping defined by the list on page 8 seems sufficient for the purposes of the present book. In Part I, we shall confront the two programmatic books that Schumpeter produced before World War I. In Part II, we analyse the evolutionary trilogy that was published between 1934 and 1942. Finally, in Part III we consider the works in progress that Schumpeter left when he died in 1950. Let us quickly consider the contents of these three parts.

Part I studies the emergence of Schumpeter’s evolutionary economics and its relation to equilibrium economics. Chapter 2 gives information on his early academic life and on the scientific context in which he developed his programmatic books. Chapter 3 emphasises that *Wesen* not only contains a call for a modernisation of economics in its non-evolutionary form, but also for the development of evolutionary economics as a complementary branch of the science of economics. The next two chapters focus on the parts of *Entwicklung I* that were omitted or rewritten in *Development*. These parts of Schumpeter’s second programmatic book are used for two major purposes. Chapter 4 tries to demonstrate how the strange phenomenon of elite theory influenced his theory of the mechanisms of economic evolution and social evolution. Chapter 5 explores how he used the resulting analysis to contribute to contemporary scientific discussions on the major problems of capitalist economic evolution.

Part II turns to Schumpeter’s evolutionary trilogy. Chapter 6 discusses the relationships between *Development*, *Cycles*, and *Capitalism*. The chapter also emphasises that his evolutionary economics is not least characterised by the analysis of the mechanisms of the “capitalist engine”. The next three chapters analyse the books of the evolutionary trilogy in reverse order. Chapter 7 analyses core parts of the contents of *Capitalism*.

Although the study of the oligopolistic version of the capitalist engine is emphasised, there is also room for discussing Schumpeter's suggestions on the analysis of political evolution and on the long-term sociological trends that point beyond capitalism. Chapter 8 turns to *Cycles* in order to explore his idea that the evolutionary process within capitalism necessarily takes the form of waves of economic evolution. It also covers *Cycles*'s attempt to integrate the theoretical, statistical, and historical analysis of economic evolution. Chapter 9 returns to Schumpeter's magnum opus in the form that it took in *Development* (and *Entwicklung II*). By adding the closely related account for economic evolution found in the first chapters of *Cycles*, the chapter tries to explore Schumpeter's basic model of the capitalist engine that emphasised innovative entrepreneurs and the conservatism of incumbent firms. The chapter ends by considering the differences between the two models of the capitalist engine found in the evolutionary trilogy: Schumpeter's Mark I and Mark II models.

Part III presents the further development of Schumpeter's programme for the science of economics in terms of works in progress. Chapter 10 steps back from his concrete evolutionary analyses to consider his role during and after what has been called the years of high theory and high econometrics (1926–39). Chapter 11 demonstrates how he in *History* developed his theory of scientific evolution and how he applied it to the history of economic analysis. One of the implications of this theory of the history of economics is that evolutionary economic analysis had failed to take off because of its lack of adequate tools. Chapter 12, the final chapter of the book, discusses how Schumpeter's unfinished works point beyond his personal evolutionary economics. The discussion is organised around the three fundamental fields of evolutionary economics, which is implicitly suggested by *History*. The fields are: evolutionary economic theory, evolutionary economic statistics, and evolutionary economic history. The discussion also points at evolutionary economic sociology and the many fields of applied evolutionary economics.

The book includes four appendices. Appendix A contains a reconstruction of Schumpeter's curriculum vitae. Appendix B shortly presents the literature that takes its starting point in the writing of Schumpeter's biography. Appendix C classifies Schumpeter's works with an emphasis on their English availability. Finally, Appendix D gives a relatively formal account for some analytical tools needed for the ecological and statistical approaches to economic evolution. The bibliography at the end of the book is divided in two parts. The bibliography of "Schumpeter's Works" is relatively complete; and it can be used for many purposes. The bibliography in "Other References" reflects the present book's relatively minimalistic mode of citation.