
Fundamentals and Debate

Schumpeter, *Business Cycles* and Co-evolution

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ABSTRACT In *Business Cycles* (1939) Schumpeter took up empirical data which had been produced by Kondratieff, and made the “clustering” of innovations into the actual cause of long economic cycles. The book was a failure, largely due to negative reviews which stressed the poor quality of its statistical analysis. In fact, an even more serious fault in it is its reflection of a near-total blind spot in Schumpeter’s perspective about the part played by law in economic life. He thought that “It is entirely immaterial whether or not [changes in the institutional framework] are embodied in, or recognized by, legislation.” The reality is that the concept of co-evolution of technology and ways of doing business, on the one hand, and legal changes which affect the conditions for investment in them, on the other, explain long cycles much more persuasively than Schumpeter’s approach. It suggests that the first Kondratieff cycle was made possible by the availability of “full” property rights, the second by general limited liability law (which Schumpeter thought was “of comparatively small importance”) and the third by new patent legislation which made corporate investment in R&D attractive. Schumpeter only discussed three cycles, but a co-evolutionary perspective makes it possible to envisage a fourth cycle as dependent upon the trademark laws which sustain advertising and mass markets, and a fifth one, in which the entertainment and information industries have been similarly underwritten by copyright law. The most plausible reason why Schumpeter undervalued laws was his attraction to the economic interpretation of history. According to this, laws, like ideas, are no more than reflections on a psychic level of social and economic realities, and have little or no power to shape these. For Keynes, in contrast, “it is ideas, not vested interests, that are dangerous for good or ill”. There was consequently no place for co-evolution in Schumpeter’s thought. But what made him publish a book which he described as “a house which is not finished and furnished”, when he did? It could be that the stimulus was evidence of the huge fame which Keynes’s *General Theory* was already winning.

KEY WORDS: Schumpeter, business cycles, co-evolution, legal institutions

Schumpeter and Kondratieff

In his *Theory of Economic Development*, published in 1911, Schumpeter observed that innovations do not emerge regularly, but are more in evidence at certain times than at

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others ([1911] 1934: 223ff.). When Kondratieff produced his empirical identification of long economic cycles after World War I, published in English in 1935, he recorded that innovations tended to “cluster” in the early part of the “upswings” of cycles. Since this put flesh on Schumpeter’s idea, it is not surprising that he made discussion of Kondratieff’s findings a central part of his *Business Cycles*, which was published in 1939.

But whereas Kondratieff could not make up his mind why long economic cycles should exist, in his book Schumpeter made clustering into their actual *cause* (1939: 170). He did not try to explain why this should be so, apparently being satisfied by the idea in his 1911 work that “the appearance of one or a few entrepreneurs facilitates the appearance of others” ([1911] 1934: 228) or “I only claim *igniting* importance for innovations” (see Stolper, 1994: 68). Neither could he show what caused “clustering” itself, nor had he any explanation for the variations in periodicity which Kondratieff had recorded for his long cycles (see Ruttan, 1959).

In the AER review of *Business Cycles* which Swedberg (1991: 226) called “devastatingly critical”, Simon Kuznets went straight for these weaknesses:

What precisely is the necessary connection between scarcity at any given time of high entrepreneurial ability (and the plenitude of imitators) and the bunching of innovations? Given an infinite supply of possible innovations (inventions and other new combinations) why need an entrepreneurial genius defer the next pioneering step until his preceding one has been so imitated and expanded that the upsetting of the equilibrium stops even him in his tracks? If imitators are ready to follow so soon, why should we not conceive these applications of high entrepreneurial ability, whether represented by one man or several, as growing in a continuous stream, a stream magnified in a constant proportion by the efforts of the imitators? (1940: 263)

Worse, Schumpeter’s inadequate empirical data in the book left him vulnerable to Kuznets’s charge that “critical evaluation of his conclusions, viewed as a systematic and tested exposition of business cycles, yields disturbingly destructive results ... The cycle is essentially a quantitative concept”, Kuznets wrote, and

Professor Schumpeter’s theoretical model in its present state cannot be linked directly and clearly with statistically observed realities; the extreme paucity of statistical analysis in the treatise is an inevitable result of the type of theoretical model adopted; and the great reliance upon historical outlines and qualitative discussion is a consequence of the difficulty of devising statistical procedures that would correspond to the theoretical model. (ibid.: 266)

Inadequate Institutional Theory

Kuznets dealt with “Business Cycles” on its own terms, but in fact the book is even less capable of dealing adequately with its topic than he claimed, because its theoretical model ignored institutional change, specifically *legislative* change. Schumpeter thought that “It is entirely immaterial whether or not [changes in the institutional framework] are embodied in, or recognized by, legislation” (1939: 11).

This ignores the reality that the institutional framework within which business is carried on cannot be other than a legislative one, particularly in relation to property rights. The irony

is that institutional changes embodied in legislation were exactly what Schumpeter needed to explain why innovations “cluster”. Investment in innovation involves risk, and a reduction in risk (which equally means higher anticipated profit) can then be expected to bring about increased investment. If a legislative change results in such a reduction, it is reasonable to expect that a “cluster” of Schumpeterian innovators will then find it possible to obtain the finance they need at much the same time. The true business mind, which Schumpeter understood well, responds with amazing speed to an opportunity of making money which is opened up by a legal change.

Alternative View of Long Cycles

From such an alternative, institutional perspective, each long cycle is then a wave of investment originating in a discrete event, which is a legislative change causing investors' perceptions of future profits to be rendered more optimistic. Of course, behind the actual change in the law there can be an innovation in technology or otherwise which is a stimulus for it. When introducing the concept of “co-evolution” Nelson observed that the historical record shows that “new technologies are not well accommodated by prevailing institutional structures and require institutional reform if they are to develop effectively” (1994: 29). It will be shown below that it is not only technologies but ways of doing business which may require legal change if they are to develop.

The resulting increased optimism on the part of investors is consequently due to a double perception on their part: firstly, as to the potential for change which new circumstances offer, and secondly as to the power of related new legislation to enable this potential to be exploited. This perception is the cause of what Perez (1985) called a new techno-economic paradigm, or what Nelson and Winter call a “general natural trajectory” (see discussion in Freeman and Louça, 2001).

The length of a cycle is then determined by how long it takes for all investors to grasp the implications of such an institutional change, and to take advantage of it. Their doing so of course results in the competing away of profits, leading to the reduced propensity to invest which is characteristic of a cycle's “downswing”, and which eventually brings it to an end. It is because the combination of changes which get particular “upswings” going are not equally effective, that cycles vary in length. Any theory of endogenous development consequently has to deal simultaneously with the complex interactions between innovations and the laws which both make them economically possible and control their diffusion.

First Kondratieff

From such a co-evolutionary perspective, what Schumpeter called the first Kondratieff (“the cycle of the industrial revolution, 1780s to 1842”) was only made possible by the development of a legal system providing for “full” property rights (see Landes, 1969: 15–17). This happened first in the Netherlands, and was then transferred to England by the 1688 Revolution. As a result, it was in place to facilitate the industrial revolution there.

This was primarily an *energy* revolution. Medieval society in Europe had been the first in history which “rested not on the backs of sweating slaves, but on non-human power” (White, 1940). But the power of animals and especially of water, could not compare in scale with the harnessing of fossil fuel from the 18th century onwards. This started in England, not

just because that country had massive coal resources, but because it also had the means for exploiting them in James Watt's radical improvement of Newcomen's steam engine through his separate condenser. It was this which enabled the coal to be extracted by keeping the mines free of water. The coal in turn fuelled more steam engines for large-scale textile manufacture and the general factory system which followed this.

The investment needed to exploit this new energy technology on a wide scale could not have been provided if the mining rights were not secure, which they were because of that long process through which property rights in England had become "full". Matthew Boulton was able to back Watt's invention because of the security in his ownership of his Birmingham button factory. Much of the capital for the industrial revolution came from landowners who were equally secure in their property. Some of these became entrepreneurs in their own right, like the Duke of Bridgewater, who built a great canal to bring coal from his mines to nearby towns.

This period also saw a great expansion of another institution, the corporation in which investment could be made with limitation of the investor's liability to his stake in a project. The Corporation as an entity separate from its members went back to Roman times, and continued vestigially through the medieval device of the *commendam*, a means whereby sea captains could obtain finance for foreign voyages. An important use of the corporate form with limited liability was in the Chartered Corporations which were given state monopolies for foreign trade, such as the British and Dutch East India Companies. The legislation which set these up resulted in very large profits for their shareholders.

Canal-building came next. A canal could not be built without what is known as *eminent domain*, which is power to interfere with landowners' property rights so that the canal may run through their land. Consequently, every canal required a specific Act of Parliament, and it was not difficult to include limited liability in this to facilitate raising the large amounts of capital it would require. What was known in England as the "mania" for investment in canals was caused by perceptions of profits to be made as a direct result of this kind of legislation.

Second Kondratieff

The following cycle, which Schumpeter called "the age of steam and steel, 1842–1897", or the "bourgeois Kondratieff", depended greatly upon making *generally available* the remarkable social innovation of the Corporation with limited liability. In the USA, the corporate form had been used from colonial times to enable local church congregations to hold property and it was then used for projects such as the Erie canal (Seavoy, 1982). Between 1811 and 1848 it evolved to the point where a corporation could be established for any legitimate business purpose (*ibid.*). This change was explicitly brought about through legislation.

In Britain, the building of railways was financed in the same way as the canals had been, that is, through Corporations with limited liability for shareholders, each of which required its own Act of Parliament. A parallel evolution to that in the USA led to the 1855 Limited Liability Act and to the Joint Stock Companies Act of the following year. These eliminated Parliamentary control, so that from then onwards, any corporation established for a money-making purpose could offer limited liability to its shareholders. This development gave British manufacturers such an advantage in reaping economies of scale because of their ease in obtaining capital, that it was copied quickly throughout Europe.

France was amongst the first to follow Britain, in spite of the fact that the new system involved a degree of independence of Government which was foreign to the French tradition. What happened was that a treaty with Belgium in 1855 included certain provisions for reciprocity, which could be extended to other countries. This was done in respect of Britain in 1862. Once British companies were able to operate in France, French businessmen argued that they were at a disadvantage without limited liability, and so their Government passed Acts to introduce this in 1863 and 1867. Spain followed in 1869, and then came Germany in 1870 and Belgium in 1873 (Ripert, 1946: 59–62; Landes op. cit.: 197).

Amazingly, Schumpeter thought that this great facilitation of investment was no more than “another instance of ... institutional change that merely formulated the logic of an economic situation ... the legislative change itself is of comparatively small importance ...” (1939: 307).

Against his view, surely nothing is more likely to improve the climate for risky investment in innovation than removal of the danger to investors that failure of a project could involve their entire fortune (as it would in the case of the traditional partnership arrangement). The new legislation for the corporate form with limited liability meant that their loss in any particular project could not be more than they had invested in it. As well as enabling investors to spread their risks, it allowed management to be separated from ownership, an essential factor in the enormous worldwide development of large-scale and professionally managed industry which ensued. The legislative changes, therefore, so far from being “of comparatively small importance”, were precisely what were responsible for this whole development.

Third Kondratieff

This was characterized by Schumpeter as that of “electricity, chemicals, motors, 1898–1929”, or “1898–1938” (see in Swedberg, 1991: 226 for the later end-date) and was that of science-based industries which needed laws of intellectual property if they were to develop. Abraham Lincoln had praised patents for individual inventors as being just as important to the human race as the inventions of writing and of printing, because they “added the fuel of *interest* to the fire of *genius*” (Noble, 1977: 84). In other words, the 1790 patent law which gave expression to Article 1.8 of the United States Constitution, made rational investment to innovate new ideas possible.

However, these new industries needed a new kind of patent law, which could provide protection for the results of *corporate* research and development. In the USA, this came about by a Supreme Court decision which adapted their 1790 Patent Act. It was to the effect that a contract of employment could validly include a clause providing for any patents which might be granted to an individual as a result of his employment to be assigned to his employer (*US v. Burns*, 1871). Without this change in the effective law, the R&D of in-house research laboratories and workshops, such as Edison's at Menlo Park, would have been impossible to finance.

Legal change which can be brought about through judicial ruling in a Common Law regime, requires an actual modification in a statute (or a new one) in Civil Law jurisdictions such as those of the European mainland. The same need as in the USA for patents to be owned by the employers of researchers also existed in Europe, but could only be dealt with

in most countries there by specific legislation. This began with the German 1877 Patent Act, which Werner Siemens actually went into politics to have passed. The Siemens brothers' firms were ideally positioned to exploit the new electrical industries because they already manufactured telegraph cables, in England as well as Germany. Siemens saw, however, that this would need large numbers of employed inventors in company research laboratories. This only made sense if any resulting patents would belong to their employing firm, and not to the individuals (Heggen, 1975: 115–118).

The same legislation was also of great benefit to the German chemical industries, which had pioneered in-house research laboratories since the 1850s. For example, the first synthetic dye was invented and innovated by Perkin in England in 1857. Although Britain had by far the world's largest textile industry to use such dyes, and unlimited supplies of the coal tar used to make them, by the end of the century it was German firms which dominated the world market for dyes (Murmans, 2003: 38–40).

This dominance depended to a great extent on their use of patents. So important were these to the German industry that when it had to cope with free-riding on its inventions by firms in Switzerland, it financed three referenda in that country until it got a patent law passed there. This is yet another illustration of legislation as the crucial component of economically important institutional change.

When patents were effectively internationalized by the 1883 Paris Convention, which Germany joined in 1903, the German firms were outstandingly successful at using its provisions to build up dominant positions in world markets (Liebenau, 1988: ch. 8). During the first years of the 20th century, 75 per cent of all dyestuffs patents in Britain and 79 per cent in the USA were held by German firms (Murmans, *op. cit.*). In fact, it is no exaggeration to claim that it was only when German patents in Britain and the USA were sequestered during World War I that indigenous pharmaceutical industries were able to develop in those countries.

Extending the Analysis—A Fourth Cycle?

Looking at macroeconomic fluctuations in terms of institutional change embodied in legislation also makes it possible to extend the analysis beyond the three “long cycles” which Schumpeter discussed. The institutional basis of a fourth “cycle” would thus be the combination of laws which made possible the industries which are based upon *brands*, that is, those of mass-market consumer goods. The first of these laws was that of trademark registration (also internationalized by the Paris Convention) through which brands can effectively obtain worldwide legal monopolies. For example, the history of Unilever contains a fascinating account of how W. H. Lever grasped what the passage of the 1883 Trademark Registration Act in Britain was going to mean for his business:

Lever, though not technically expert in soap making, had the firm intention of establishing a soap of distinctive quality. The more successful it was, the greater the risk that others would try to copy his trade-mark. A distinctive trade-mark was as important as a distinctive soap ... “When [‘Sunlight’] occurred to me, I had to go straight off to Liverpool and ask Thompson to register it at once: I was all in a tremble to have it registered, for fear somebody else had got it.” Lever’s intuition did not mislead him. He had stumbled on a name that could not only be registered in England but in every country in the world. (Wilson, 1954: 27)

Lever was in the vanguard of a flood of investors who grasped that this new legislation had fundamentally changed the way in which business is done, and that the future would depend upon marketing and advertising in a way which had never been known before.

Clearly, the huge worldwide marketing and advertising industries are underwritten by trademark registration law. The media also depend upon this, since they now obtain most of their revenue from advertising; professional sport largely exists because of brand sponsorship; and of course franchising is only possible because of the ability to divorce the legal ownership of the franchised brand from the assets and performance of local franchisees. It is even possible to credit much of the modern haulage industry's existence to trademark registration, since its cargoes are often close to being identical at the physical level, but differences in the public perceptions of brand names still make the goods worth moving.

The markets of all these industries require that consumers have discretionary income. The growth of this element in salaries and wages was in turn brought about by institutional changes embodied in legislation, especially the laws which legitimized trade union activity. Earlier aspects of this activity, together with earlier judicial decisions about reputation, show that it is not only technology which needs to evolve together with legislation if there is to be growth and progress. Branded goods as we know them could never have developed if the protection of their trademarks had remained limited to what the Common Law could provide, and if workers had continued to be prevented from combining to press their interest.

And a Fifth?

The characteristic industries of a putative (fifth) "cycle" are entertainment and information technology. The modern entertainment industry depends completely on copyright law, and in particular on an enormous lengthening of the period of protection it provides. For example, in the first US Copyright Act of 1790, it was granted to an individual only, and lasted for 14 years, with a further 14 years if the grantee was still alive at the end of the first period. Today, it is also available to firms, for which the term is 120 years, so that as well as individual creativity, it also underwrites all kinds of commercial publishing, and film and television production as well as cinemas and theme parks.

Investment in information technology on the scale there has been in recent decades was only possible through the extension of copyright protection to computer programs, and later, by giving programs patent protection also.

These fourth and fifth "cycles" are closely associated with globalization, an important aspect of which is a thrust towards establishment of similar laws of property rights throughout the world. The World Trade Organization was established to be the main instrument for this, and includes a section known as TRIPs, which deals with intellectual property. This highly significant institutional change came about through agreement at Marrakesh in 1995 on a common *public international law* (see Sell, 2003: 96).

Conclusion: How Could a Great Economist be so Wrong?

In spite of Schumpeter's great authority, therefore, it seems clear that legislative changes are anything but "entirely immaterial" to economic activity, and especially to innovation.

Such changes are manifestly the crucial factor in turning what would otherwise remain an isolated economic ripple into a long “wave”.

But how could an economist to whom we owe so many important insights have missed this? Even to be able to see that he did so, depends to quite a degree on other aspects of his intellectual legacy.¹ The founding study of evolutionary economics is Nelson and Winter’s 1982 book, and this is explicitly Schumpeterian in its inspiration. Yet, because of his myopia about the importance of law, Schumpeter can offer little help to the study of *co-evolution* of technology and business methods on the one hand, and institutions on the other, which is now such an important part of the future of this discipline, as confirmed by Nelson (2004).

Freeman called attention to Schumpeter’s “reluctance to conceptualize invention, innovation and technology accumulation as a social process” (1990: 20–24). This would explain his lack of interest in institutions, but not his near-total blank spot as far as law is concerned. It is surely significant that John R. Commons, the scholar from the Wisconsin institutional school who “pioneered an intelligent appreciation of the role legal institutions play in giving shape to the market process” does not even rate a mention in his otherwise remarkably comprehensive *History of Economic Analysis* (Moss, 1996: 4).

Money was always central to Schumpeter’s thinking, yet he wrote that even this was “as little a creature of the law than [*sic*] is any other social institution” (cited in Arena and Dangel-Hagnauer, 2002: 7). Ernest Mandel studied long economic cycles from a Marxist perspective, and in fact observed that the Dutch scholar van Gelderen had anticipated Kondratieff in many respects. He found it “astonishing” that Schumpeter should have overlooked the importance of any change which brings with it the prospect of a steep rise in the rate of profit, since profit was so central to his thinking ([1972] 1975: 137, 145). As has been seen, legislative change has great power to bring about a change in profit, anticipated as well as realized.

Schumpeter’s dismissal of the effect of legislation is also strange in light of his belief in the importance of bureaucracy, one of whose main functions is the shaping of laws. For example, his ideal was the Prussian imperial bureaucracy, and he noted that one of this body’s main functions in respect of railroads was “exerting discretion in chartering”, that is, in structuring the *legal* arrangements within which private entrepreneurs were to operate (1939: 346).

Economic Interpretation of History

The most plausible answer to why Schumpeter failed to grasp the importance of legislation is his attraction to the economic interpretation of history. He wrote, for example, that his belief in “a source of energy within the economic system” and the theory of it which he was trying to build, were “exactly the same as the idea and the aim that underlie the system of Karl Marx” (Schumpeter, [1912] 1989: 166). Rosenberg is one of several scholars who have discussed this aspect of his thinking (see for illustrations 1994: 55ff.; 2000: ch. I).

¹ “If I have seen further, it is by standing on the shoulders of giants.” Sir Isaac Newton, letter to Robert Hooke, 5 February 1676.

For Marx and those who think like him, ideas are merely the reflections on a psychic plane of economic and social realities. Schumpeter as good as said the same about laws, when he observed (about limited liability) that it was no more than “another instance of ... institutional change that merely formulated the logic of an economic situation ... the legislative change itself is of comparatively small importance ...” (1939: 307). Or, even more generally, when he wrote that “It is entirely immaterial whether or not [changes in the institutional framework] are embodied in, or recognized by, legislation” (1939: 11).

In contrast to Marxists, for Schumpeter's great contemporary, Keynes, ideas have a life of their own which can change the world. As he wrote at the end of the book which gained him the worldwide fame which Schumpeter had hoped would be his own, “soon or late, it is ideas, not vested interests, that are dangerous for good or ill” (1936: 384). The foregoing account of long cycles shows that laws, too, share this power to *shape* social and economic realities. Schumpeter's vision went beyond that of Marx in many ways, but unfortunately not in this respect, where it also falls short of that of Keynes.

The Kuznets review did serious (perhaps even terminal) damage to “Business Cycles”. From the breadth of his editorial experience, Professor Mark Perlman has suggested that Schumpeter might have got away with it if he had used the subtitle of his book—“A Theoretical, Historical and Statistical Analysis of the Capitalist Process”—instead of his main title. But to offer an empirical study and have its weaknesses dissected by the doyen of empirical economics at the time, was a disaster.

Schumpeter introduced *Business Cycles* as “a house which is not finished and furnished” (1939: v) and indeed Kuznets observed that “in many of its parts it reads like an intellectual diary, a record of Professor Schumpeter's journey through the realm of business cycles and capitalist evolution” (1940: 271). So why should he have published it when he did, even though it was such a poor expression of the true quality of his thought and learning? A possible answer is that it was then already clear how hugely influential Keynes's “General Theory” was going to be,² and that this seduced a highly original thinker who had never given up his early ambition to become “the greatest economist in the world” (see Swedberg, 1991: 46; Shionoya, 1997: 17).

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² For example, a mimeograph translation was circulating in the Ministère des Finances in Paris within a year of its London publication in 1936, even though a French edition of the book did not appear until 1942.

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