
Book Reviews

The Evolving Economy: Essays on the Evolutionary Approach to Economics

Ulrich Witt

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This is a highly welcome book. More mature scholars should write books showing how their earlier articles integrate to form a distinctive approach to their subjects. The book contains a lengthy and well-written introduction, which is then followed by a carefully organised collection of 19 of Witt's earlier articles, each of which is an exceptionally well-written treatment of a separate issue related the subject of evolutionary economics. All in all, it represents the attempt of a highly intelligent mind to define, develop, and methodologically defend a distinct, intensively positivistic, evolutionary approach to economics. The articles are explicitly driven by a desire to explain the dramatic technological and institutional changes that have occurred over the past 125 years.

Chapters 2–5 of the collected articles extend Schumpeter's view of the earlier process of fitful, individual, technological innovations to the more modern case of a steady flow of institutionalised innovations that emerged around 1880. Veblen is Witt's analogously positivistic methodological predecessor with respect to the subject of institutional evolution. Because Schumpeter and Veblen's processes need not entail natural selection, their processes are "evolutionary" only in the pre-Darwinian sense that they are theories of historical development that ignore now-standard concepts of dynamic equilibrium and social optimality.

In particular, Witt's evolutionary process is described as so full of steady technological novelties that it violates all notions of equilibrium and optimality. Nevertheless, when, in Chapter 2, Witt attempts to explain the innovation boom of the past 125 years (twice that span if we count England), he offers a surprisingly unembarrassed, albeit incomplete, application of the rejected theory of rational economic choice rather than a predictive evolutionary theory. For Witt's main causal variable is the degree of social acceptance of, and therefore economic reward to, its inventors. However, Witt fails to complete the discussion by explaining why only some countries substantially rewarded their inventors and why only some of these countries experienced innovation booms. Yet this is not difficult: Efficiency-and-rationality theory tells us that the overhead costs of governmentally rewarding inventors are only justified in relatively large and secure economies. England formalised her patent system only after she had begun her empire-building program in the 1610's. Ancient China similarly began her long and impressive record as an inventor-rewarding country only after establishing a centralised imperial Government in the 3rd century B.C. Also, since the profit to innovation is limited by the extent of the market, England's industrial revolution began

only after she won her definitive imperial war with France in 1763. And the United States and Germany began their industrial revolutions only after they had finally established large, unified nations in the last third of the 19th century. Similarly China's industrial revolution coincided with the re-centralising Song dynasty in the 10th century. A similar contemplation of the collective-good character of technology and the continuing expansion in the scale and scope of the world's patent-protected regions explain the world's inter-temporally increasing rate of technical advance. Witt's emphasis on the uncertain results of inventive activity thus appears to have prevented him from creating a simple, efficiency-and-rationality-based, predictive, economics of invention, one that readily answers the book's basic historical question.

Witt attempts to rationalise his rejection of conventional economics in favour of a psychology-based approach by pointing out that new ideas cannot be planned, otherwise they would not really be new. But this ignores the fact that inventive thought is typically quite self-conscious in its escape from convention. A higher expected profit from such mental escapes will generate more invention, which is all that is required to apply conventional economic analysis to uncertain invention. Although Witt's Chapter 5 provides an evolutionary simulation study that supports satisficing over what Witt represents as profit maximisation, a dynamically rational profit measure would reverse this conclusion.

In any case, Witt's analysis of the systematic part of the evolutionary process (which he characterises as post-invention evolution despite the fact that his professed model is steadily confounded by an essentially continuous stream of unpredictable inventions) replaces rational economic dynamics with a general set of differential equations. But then there is no substantial theoretical discipline in searching for a realistic dynamic process. Although Witt denies this in Chapters 3–4 and does introduce various conceivable restrictions on the equations, their arbitrary character makes them even less persuasive than the restrictions of optimal growth theory. More sympathetic readers may nevertheless benefit from contemplating the alternative dynamic paths described in Chapters 3–5. The admissible solution concepts include a biology-literature-based replicator-dynamic equating the probability of an individual's adopting a given type of behaviour to the population frequency, although Chapter 10 generalises this to include corner solutions, which then leaves the approach bereft of empirical implications. Although the discussion does feature stationary points, or Nash equilibria, no refinements are offered that would predictively select among the large number of possible equilibrium points.

Chapter 6, a generalisation of Arthur's network-effect model to allow for "locked in" technologies, features atypically rational innovators. After joining several earlier authors in characterising a non-monopolistic, network-effect equilibrium as inefficient even though it actually possesses no *ex-ante* inefficiencies, Witt introduces some strategic, essentially monopolistic, elements into the innovational model and then, remarkably, claims that such elements reduce the alleged competitive inefficiencies.

Chapter 16 offers a similarly atypically rational analysis of innovational regimes in which Witt suggests that we make *laissez faire* innovators responsible in tort for any negative real externalities that might stem from their innovations, which would be a respectable argument if observed economies did not already hold technology users responsible in tort for their negative technological externalities and if taxes were not a welfare-superior policy.

Returning to the subject of evolution, Chapters 7–10 broaden the discussion to include biological and social evolution. Consistent with Witt's neo-Schumpeterian approach, Chapter 7 expresses his regret that Post-Darwinian economists turned to precise notions of equilibrium and optimality in the neoclassical era instead of following the methodology of the German Historical School. More specifically, although usefully illustrating the value of Darwinian psychology to economists and pointing out that natural selection must be complemented with learning-effects to be applicable to society, Witt unjustifiably rejects modern concepts of equilibrium in favour of his essentially non-predictive, continually disequilibrating, Schumpeterian approach.

Chapter 8, on preferences and sociobiology, begins by arguing that secondary reinforcers (Pavlov's bell) and culture, vaguely defined, create random and unpredictable elements in individual preferences that are analogous to the random and unpredictable elements in industrial technology. Here, Witt ignores the sociobiology that would rationalise secondary reinforcers and their temporary character and similarly ignores the sociobiology underlying culturally dependent preferences and their relatively permanent character. Rather, although demonstrating a reasonably thorough understanding of Darwinism and modern sociobiology in Chapter 9, Witt allows his antediluvian methodology to lead him to retreat from the myriad insights offered by these subjects. In their place, we are offered little beyond historical description and largely pointless differential equation systems.

Although Chapters 1–10 thereby fail to motivate the Schumpeter-Nelson-Winter methodology espoused there, they are serious and scholarly attempts and should create no prejudices against Chapters 11–20, which concentrate on the evolution of social institutions.

Here, Witt joins other recent authors (e.g., Boyd and Richerson; Peyton Young) on social evolution in characterising institutions as "behavioural regularities." Unfortunately, this does not capture the concept at all. Institutions are pre-committed and announced reaction functions that various leaders employ to control the behaviour of others. Without an accurate abstract characterisation of institutions, there is no way for such models to produce the unique Nash equilibrium refinement required to characterise individually rational social interactions and thus no way to rationally support their claim of a socially optimal equilibrium. For example, religion and myth, far from the quaint "cultural" reflections of positive-surplus societies characterised by these authors, are necessary to enforce the unique reaction-commitments of a rational ruling-elite. No amount of words, or chapters, can overcome this basic flaw.

Although Witt appreciates the strategic value of territorial psychology, role-learning, secondary reinforcers, morality and commitments – especially in Chapters 14 and 15, where we also find a recognition of a more modern concept of evolutionary equilibrium (Maynard-Smith's "evolutionary stable solution") – the concepts are stray *dei ex machinis* and far from integrated into a wholly rational, unique-equilibrium, model.

Chapter 17 is an extremely enlightening introduction to Austrian economics. It draws a bright contrast between Austrian micro-economists such as Menger, Mises and Kirzner and systemic Austrians such as Schumpeter and Hayek. While the former school has contributed in diverse ways to modern economic understanding, Witt clearly belongs to the latter school.

Chapter 18 is a simple extension of the novelty-implies-complete-unpredictability argument of Witt's introductory chapters to social institutions.

Chapter 19, entitled “Turning Austrian Economics into Evolutionary Theory,” would make Karl Menger roll over in his grave. It was Menger who taught Austrian economists that economic institutions such as money evolved from a long sequence of individually motivated, often vaguely understood, decisions. Conventional evolutionary economics has always been part of Austrian economics. Menger’s individuals maximised something akin to expected utility, which only became certain utility in a stationary equilibrium. In contrast, Schumpeter and Witt – via their respective romanticisations of entrepreneurship and novelty – diverge from Menger by often deviating from the discipline of neoclassical theory. Nevertheless – and this is what Witt overlooks – entrepreneurs may be completely unaware of the specific technologies that they will employ in the future but still use their private information to rationally estimate the probability distributions of future costs and returns resulting from their current economic decisions.

Although Witt does finally arrive at an informal Burke-Menger-Hayek conception of a spontaneously evolved and efficient long-run organisational equilibrium in his final, 20th, Chapter, following Austrian tradition, he does this by conjecture rather than proof. As a result, Witt fails to see the various conditions that must hold for a society to achieve an efficient institutional equilibrium. For example, like the Austrians, Witt fails to see that:

- 1 In the absence of special, vital, institutions, which work to aggressively weed-out slowly-adjusting societies, occasional society-altering shocks would prevent societies from having the time to evolve even approximately efficient institutions
- 2 ideology, or influential policy thought produced by internally evolved but parasitic intellectual cartels, represents a serious, often deadly, source of institutional inefficiency.

The requisite derivations of and advances on Austrian evolutionary ideas – along with a consequently distinct interpretation of institutional and economic history – are produced in a fairly recent book of which Witt was apparently unaware.¹

In summary, just as Witt uses the actually conquerable complication of technological uncertainty to escape from the powerful predictive discipline of economic theory in his positive analyses of Chapters 1–10, Witt uses the actually conquerable complication of multiple Nash equilibria to escape the powerful prescriptive discipline of a policy-relevant social theory in his institutional analyses of Chapters 11–20. While escapes from convention often open up great new intellectual vistas, Witt’s escapes appear to lead straight back into a pre-neoclassical intellectual jungle.

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Biographical notes: Professor Thompson received his PhD. in Economics from Harvard University in 1961. After serving as an Assistant Professor at Stanford University from 1962 through 1965, he returned to his Alma Mater, UCLA, where he has been a Professor of Economics for over 35 years.

During the first 25 years of his career, Professor Thompson published typically novel, often seminal, articles on pure and applied economic theory in all major US economic journals. Increasingly, his models resulted in the conclusion that contemporary US economic institutions – rather than being the inefficient result of an inefficient social process that economists almost universally interpreted them to be – were largely the efficient result of an efficient social process.

Then, in the early 1980's, Professor Thompson's work turned toward the study of history. Although this redirection initially was simply used to test new theories of guilds, economic underdevelopment and social organisation, it eventually became apparent that the various histories were realisations of an underlying evolutionary process. A marriage of this process to the burgeoning field of evolutionary game theory has recently generated Professor Thompson's first book, written with Charles Hickson, wherein – without suitably informed intervention – efficiency is only a temporary, pre-parasitic, feature of social evolution.

Notes

¹Thompson and Hickson, *Ideology and the Evolution of Vital Institutions*, 2nd Edition, Kluwer, 2001.