

Culture, Growth, and Economic Thought: Some afterthoughts

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Introduction

As Heinz Kurz notes (p. 1), my *Culture of Growth* is a multilayered (he was generous not to say “chaotic”) book. It is about the market for ideas, about European exceptionalism, about the growth of science and technology before the Industrial Revolution, and about the use of evolutionary models in economic history. But as the book states right off the top, it is mostly an attempt to understand the historical roots of what came after it: the Industrial Enlightenment, the Industrial Revolution, and the incredible take-off into modern economic growth and our current prosperity and comfort.

The term “Great Enrichment” proposed by McCloskey (2016, p. 5) strikes me as a better term to describe the hockeystick-like time series of income and living standards after 1800 than the “Great Divergence” proposed by Pomeranz (2000), since the latter is a statement about *relative* income between the West and the Rest, whereas “enrichment” points to the world-wide increase in every measure of living standards than one can think of. If poverty has become rare in the industrialized world and is now rapidly declining world-wide, the “deep” reason is the growth of what Europeans called “the useful arts” or “useful knowledge.”

The same question was already asked on the eve of the Industrial Revolution. In an interesting passage, Dr. Samuel Johnson’s fictional Abyssinian prince Rasselas asked his philosopher friend “by what means are the Europeans thus powerful; or why, since they can so easily visit Asia and Africa for trade or conquest, cannot the Asiatics and Africans invade their coasts, plant colonies in their ports... the same winds that carry them back would bring us thither.” The answer that was provided would horrify politically correct global historians: “they are more powerful than we, sir, because they are wiser; knowledge will always predominate over ignorance. But why their

knowledge is more than ours I know not” (Johnson, 1759, Vol. 1, p. 74). Yet this question is not unanswerable; by 1750, surely, Europeans knew more than non-Europeans about subjects that were beginning to affect or would soon affect material living standards. The main purpose of my book was make some progress as to why this might have been the case.

A fundamental distinction on which much of my works rests is that Smithian Growth differs fundamentally from Schumpeterian Growth, as Richard Sturén points out. Smithian Growth, named in honor of Adam Smith, typified the pre Industrial Revolution era. Growth, if and when it occurred, was driven largely by gains from trade, better allocation of resources, more secure property rights, and better factor markets. All these Smithian developments share two characteristics. One is that they depended primarily on institutional change, and thus could be readily be reversed and undone as they often were. Secondly, even when they were not reversed, this kind of growth inexorably runs into diminishing returns. In the theoretical limit, once property rights are secure, gains from trade are exhausted, and allocations are efficient, further gains of this type are increasingly hard to attain. Schumpeterian Growth rests on growing useful knowledge: as science and technology expand, production gets more efficient, new products and services appear, and modern economic growth can last much longer without ever running into diminishing returns (and could run on forever, though there is no way of really knowing this for sure). The great watershed of the Industrial Revolution was the growing relative importance of Schumpeterian Growth relative to Smithian Growth, although both played an important role, and interactions between the two make any neat accounting rather impossible.

The Evolution of Knowledge

In his generous assessment of my work, Professor Buyst (p. 5) assesses that I am now more skeptical about an explicit evolutionary framework in this book than in the past. He senses, correctly, that I am wary of shoehorning a set of observed economic phenomena into a framework intended for another discipline, despite a number of reckless ventures I have taken in that direction (Mokyr, 1991, 1996, 2018). The history of technology is quite unlike biological evolution, and the analogy could mislead as much as it could enlighten. Some Darwinian elements carry over while others do not.¹ Knowledge, values, and beliefs — in short, culture — can be seen as an evolutionary system because they are subject to “selection”: people can decide what to believe and choose from competing values and knowledge. The evolutionary nature of culture is the topic of a rigorous literature produced by a small but powerful and influential group of scholars.²

In my book, I discuss the advantages of evolutionary models of knowledge formation. Above all, evolutionary systems reflect the twin phenomena of superfecundity and selection. Any epistemic system produces more “variants” than society can absorb, and so some form of selection is crucial. People come up with new ideas, many of which simply are rejected and vanish without a trace, much like mutations throw up many potential variants that for one reason or another do not make it. The place where this happens is the market for ideas. It is different from what happens in the natural

¹The three elements that are clearly necessary for all Darwinian models are variation, intergenerational transmissibility of traits, and superfecundity that necessitates selection. Some of the other elements of modern genetics such as the Weismannian barrier and the randomness of mutations do not carry over (Aldrich et al., 2008; Hodgson and Knudsen, 2010, p. 35-36; Mesoudi, 2012).

² This literature was started by the seminal work by Cavalli-Sforza and Feldman (1981), and Boyd and Richerson (1985; 2005). More recent work in this tradition includes Richerson and Boyd (2005); Jablonka and Lamb (2005); McElreath and Henrich (2007); Henrich (2009); Mesoudi (2012). The papers collected in Richerson and Christiansen (2013), especially Mesoudi et al (2013), Boyd, Richerson and Henrich (2013), and Shennan (2013) provide excellent surveys of the state of the art in the area of the application of models of cultural evolution to the growth and dissemination of useful knowledge.

world. In biology, “natural selection” is purely metaphorical. The selection mechanism is driven exclusively by differential survival and reproduction. In contrast, in the market for ideas people actually make conscious choices, choosing one cultural element over another from a menu of options. The book relies heavily on a classification of so-called “biases” that make people choose one belief over another.

Despite the differences, there are enough similarities that make the use of evolutionary concepts useful in this context. Like species, some widely held ideas may eventually go “extinct” in the face of a powerful new competitor (for example, geocentric astronomy or miasma theories of disease), but in other cases new ideas may coexist with the old ones in some kind of mixed equilibrium in which the competitive environment is insufficiently stringent to bring about a complete domination of the innovation. This happens when knowledge is “untight” so that it is hard to come up with smoking-gun type evidence to support or refute an idea. Much of the relevant history of ideas is not so much about the first occurrence of a new idea as much as about how they gradually became tighter as evidence poured in. An example is the idea that small organisms are the cause of infectious disease. The idea of germ-caused infection was first proposed by Girolamo Fracastoro in his *De Contagione* (published in 1546). In 1687, another Italian doctor, Giovanni Bonomo, explicitly argued that some skin diseases were transmitted through minute living creatures that he had observed through a microscope, and that he believed were passed from person to another

(Reiser, 1978, p. 72; Connor, 2004, pp. 227-230).³ Yet it is not until the last third of the nineteenth century that the germ theory became tight enough to completely revamp infectious-disease medicine.

Evolutionary theory is not very helpful in predicting what the future will bring, in large part because both innovation and selection depend on so many contingencies. The same is true for the market for ideas. It is hard to know which ideas will emerge, and once emerged, which ones will prevail. Clearly being “correct” may help an idea find acceptance, but what may seem correct to one generation may seem wrong to another. However, the one idea that caught on in the market for ideas in early modern Europe was the belief in the possibility and desirability of human progress. One can see why people came to believe in it: between 1450 and 1550 Europeans had experienced a great deal of progress. They had sailed to every region on the planet, learned to print and disseminate the written word, and experienced considerable progress in a range of technologies, including fire-arms, metallurgy, painting, and mining. Cities and commerce had grown, and new consumption goods were becoming available.

Conrad Schefold refers to the debates in Germany, pointing out that contemporaries were aware of the “growth process” and that it could be affected by economic policy. He is quite right that in the book I do not stress the effect of government policies meant to further the interests of the ruler and hopefully to increase the prosperity of their realms (although I do note the mercantilist roots of Francis Bacon, whom I regard as the prophet of the doctrine of progress). Yet we can both agree that by the late seventeenth century more and more people felt that social and economic progress were

³In an insightful letter to his friend Francesco Redi he wrote that he suspected that scabies was caused by “the continual biting of animalcules in the skin,” which is in fact correct, as the disease is caused by mites names *Sarcoptes scabiei*, less than half a millimeter in size. Yet proving it turned out to be difficult, and humoral theories remained the ruling beliefs until the mid nineteenth century.

possible and that they could do something about it. Believing in progress in itself may not have been sufficient to bring about economic growth, but it may have helped to overcome resistance to it.

Capitalism and Economic Growth

Bertram Schefold remarks that I have little use for the concept of capitalism (the term barely appears in the book). I plead guilty. In almost five decades of studying and teach economic history, I have found the terms to be too awkward and value-laden to be very useful. Despite the major works that trained economic historians have written about it (the latest version is the bulky 2-volume set edited by Larry Neal and Jeffrey Williamson, 2014), they have actually little to say about it.

This is distinctly not the case for another strand in modern historiography which actually calls itself “History of Capitalism.” Writers in this tradition — mostly innocent of economics — regard modern economic growth primarily as a case of successful predation, according to which the West enriched itself at the expense of other civilizations that were less aggressive and less committed to capitalist practices. While they rarely use the term, these scholars see the Great Enrichment fundamentally as a zero-sum game, in which colonial plunder and enslavement enriched a few nations in Europe at the expense of the rest of humanity. In this view, if Europe experienced a “great enrichment,” someone else must have undergone a “great impoverishment. State actions, often driven by mercantile political influence, led to the forceful seizure of Atlantic markets by British and French agencies, writes Prasannan Parthasarathi (2011, p. 143), and the technological progress that occurred was the outcome of an “explicit rejection of market outcomes” (ibid., p. 62). Anievas and Nisancioglu (2015) see the European expansion after 1500 as creating a web of commercial and financial relationships engendered by the Atlantic slave trade, which proved a critical factor in

Britain's capitalist industrialisation, further assisting its global supremacy. They argue that the "limits of 17th-century English agrarian capitalism" could be overcome because England's "ruling class was able to exploit the widened sphere of economic activity offered by the Atlantic" (pp. 121-122). Equally explicit is Sven Beckert's much-praised volume on cotton (Beckert, 2014), who explains Europe's economic successes by a "coercive European mercantile presence in many of the regions of the world" (p. 37) and asserts the existence of something he calls "war capitalism," by which he means the combination of imperial expansion, slavery, and land expropriation (p. 52) as the engines that drove dynamic markets, capital formation and eventually innovation and economic growth in the West.

To use a Darwinian term, this is a History of Capitalism "red in tooth and claw."⁴ To be sure, nobody will deny the salient facts of European colonialism, slavery, and the ruthless domination and exploitation of non-European populations. But the exact causal chain behind the Great Enrichment is simply too important to be glossed over in a wave of ideological zeal by those who see a malevolent force named "capitalism" as the primary force behind global imperialism and inequality.

My response to this approach is that ideas not only have consequences, as Richard Sturges stresses, but that knowledge is nonrivalrous. Once created, it is costless for more and more agents to make use of it. Rather than a zero-sum game, in which winners exploited losers, the essence of modern history is a positive game. The superior knowledge pointed to by Johnson's philosopher was a tide that lifted all economies, even if not to the same degree and at the same time. In the past

⁴The term first appears in an 1850 poem by Alfred Tennyson, and has been used to describe the savageness of "survival of the fittest." See Dawkins, 1976, p. 2.

decades, world-wide poverty by almost any measure has sharply declined thanks to technological advances made in the West.

Institutions and The Great Enrichment

Professor Sturn makes a deep and important point when he notes that “ideas have consequences,” the title of a landmark book in conservative western thought (Weaver, 1948). Without accepting Weaver’s arguments, there is no question that what people knew or believed they knew to be true mattered to all kind of outcomes, not least economic ones.⁵ But if ideas had consequences, so did institutions. Sturn stresses the importance of “open-ness” in the emergence of the modern economy. Openness and political competition between European nations after 1500 were a key. It may well be the case that much of what I describe had medieval roots. A string of scholars, from Lynne White (1968, 1978) to James Hannam (2011) have pointed to the advances made by scientists and inventors in medieval Europe.⁶ Scholastic learning, Sturn notes, gave rise to many ideas that in embryonic form herald the eighteenth century Enlightenment, such as contract law and individualism. Yet the notion that useful knowledge was primarily meant, as Bacon famously wrote,

⁵I am grateful to Professor Sturn for making me go back to look at Weaver’s famous book after many years and remind myself why I disliked it so much. To an economist, at least, Weaver presents the worst kind of self-righteous moralizing coupled to a profound ignorance of economic history. He contemptuously dismisses those “who side with the Baconians in preferring shoes to philosophy” pointing to a (completely fanciful) “sense of abundance felt by older and simpler societies” as opposed to the “sense of scarcity felt by the ostensibly richer societies of today.” He dismisses the achievements of the Great Enrichment with an elitist superciliousness and instead stresses the neuroticism of modern life because of the fear that “the Juggernaut technology may twist or destroy the pattern of life” the typical modern person has made for himself (1948, pp. 15-16).

⁶Sturn cites the important book by Michael Gillespie (2009), which (like Weaver) argues for the importance of medieval metaphysical thought (and specifically William of Ockam’s nominalism) for what he calls the “metaphysical path to modernity” and the scientific revolution. There were many connections between medieval intellectuals and the scientific revolution (Hannam, 2011). Yet they were all conditional on a specific institutional environment to turn Europe in the direction of the great enrichment and this environment only matured after 1500.

to be “a rich storehouse for the glory of the creator and the relief of man’s estate” only fully took hold in the sixteenth and seventeenth centuries, culminating in the Industrial Enlightenment of the eighteenth century. This development happened in a specific and particular institution context: a competitive world of small and medium-sized states, struggling for competitive advantage, to support their dynasty, religion, and trade (not necessarily in that order). It is that context that explains a great deal of what was happening in Europe.

Yet open-ness had another dimension, and that was the fundamental unity of the intellectual community within which ideas were generated in early modern Europe and the ease with which ideas circulated within the intellectual community. This unity had obvious roots in the medieval church, but it was transformed in the sixteenth century, not only by the fatal weakening of religious institutions, but by the emergence of the printed word and the exchange of letters in the pan-European intellectual network of the *respublica litteraria*. As a transnational and trans-religious institution, it was the very epitome of an “open” structure that made the market for ideas work better. It served as a clearinghouse for scholarly work written in Europe and created a mechanism to evaluate any kind of intellectual innovation. It thus allowed the most successful intellectual innovators of the time to become famous. The majority of the influential intellectual innovators recognized by posterity as having made major contributions to science were already world-famous superstars in their own time, no one more so than Newton himself.

The Republic of Letters ensured the emergence of what we call now open science, since keeping discoveries a secret would do little for a scholar’s reputation. It surely is true that scientific knowledge that is kept secret can hardly contribute to economic progress, and that the emergence of open science was the critical development of the age (David, 2008). But it is only in a community

that is both competitive and collaborative — such as is the case in a comparatively free market for ideas — that genuine progress was achieved and that the knowledge-foundation (or the epistemic base) of the techniques that drove the Great Enrichment was laid. The combination of political fragmentation with intellectual unity provided Europe with an unbeatable advantage and paved the road to the Great Enrichment.

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