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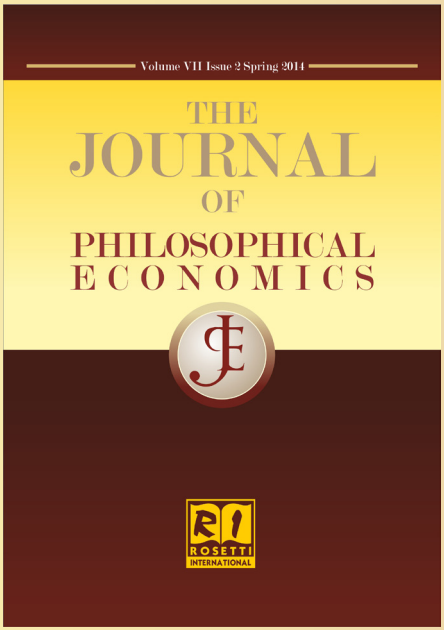

Growth theory after Keynes, part II: 75 years of obstruction by the mainstream economics culture

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Growth theory after Keynes, part II: 75 years of obstruction by the mainstream economics culture

Hendrik Van den Berg

Abstract: Part I of this essay explained the sequence of events that enabled the neoclassical paradigm to regain its dominant position in mainstream economics following serious challenges by 'Keynesian' economists. This second essay seeks to answer the question of *why* the economics profession was so willing to sustain the neoclassical paradigm in the face of the reality-based challenges by 'Keynesian' economists like Harrod and Domar. The answer is sought in the culture of economics, the history of science in general, and the study of power in the field of political economy. This article draws heavily on the work of the French sociologist Pierre Bourdieu, who divides culture into *habitus* (procedures and dispositions) and *doxa* (more abstract beliefs and philosophies), in order to provide insight into how culture affects economic thinking. Bourdieu's concept of *symbolic violence* helps to explain how a narrower neoclassical growth model was enthusiastically accepted as a replacement for the 'Keynesian' Harrod-Domar growth model. Financial and business interests clearly understood the power of culture and they used their accumulated wealth to support the neoliberal doxa and neoclassical habitus that would induce economists to willingly provide intellectual cover for policies that benefitted those financial and business interests. We conclude with a discussion on how the history of thought on economic development might have evolved if the Keynesian paradigm, and its dynamic Harrod-Domar model, had prevailed.

Keywords: Bourdieu, Harrod-Domar, sociology of economics

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Introduction

In our essay published in the previous issue of this journal, we described how the growth model developed by Harrod (1939) and Domar (1946) was quickly rejected by mainstream economists for its alleged inconsistencies, only to have these same economists enthusiastically replace it with an inconsistent pair of new models, the static neoclassical Solow (1956, 1957) model and a dynamic endogenous growth model based on Schumpeter's (1934) concept of creative destruction. We surmised that, perhaps, many economists were uncomfortable with the Keynesian revolution and the 'Keynesian' Harrod-Domar model, leaving them biased towards accepting an alternative model or set of models that, unlike the 'Keynesian' Harrod-Domar model, denied the likelihood of economic instability or the need for government intervention. As inconsistent as they were, the combination of the Solow model and a dynamic endogenous growth model clearly suggested the optimality of laissez-faire policies, a conclusion popular among mainstream economists before the Keynesian revolution.

The first essay detailing *how* the dominant neoclassical paradigm was returned to dominance in the field of economics does not explain *why* the economics profession was so willing to reinstate the neoclassical paradigm in the face of an economic reality that seemed to favor the challenges by Keynes and Harrod-Domar. In this essay, we seek answers to the question of 'why' by taking an inter-disciplinary approach, specifically drawing on the history of science, sociology, and political economy. We conclude with some conjectures on how the field of economic development might have been different today if the Harrod-Domar model had prevailed.

Routine science and paradigm shifts

The neoclassical paradigm seems to have been so well entrenched, despite the glaring real-world anomalies, that most growth economists did not fully grasp the relevance of the Harrod-Domar model when it was introduced. Apparently, the prevailing neoclassical modeling framework functioned much like a cultural or religious belief system that exercised its influence without serious question. In effect, the power of the culture in the field of economics seems to have pushed economists to violate the logic of the scientific method. Of course, economics is not unique in experiencing such a violation of scientific logic.

The history of science

Kuhn (1962) observed that the practice of science has never been a consistent or continuous process. Kuhn found that historical evidence suggests that science tends to consist of long periods of *normal science* interrupted by occasional spurts of *revolutionary science*. He defined the former as the routine activities closely controlled by the methodology and scope of a reigning *paradigm* that sets firm parameters on what subjects scientists should research, the methods they should use to conduct their research, and how they should interpret the results and shape their conclusions. Kuhn's historical research revealed that even when *anomalies* to the dominant paradigm's predictions and analytical conclusions were readily observable, practitioners often ignored them. More recently, Nelson and Winter (1982) described how scientists often find clever but unscientific ways to explain away facts and events that clashed with conventional thinking. Sometimes their perspective was so tightly focused by the existing paradigm that they simply did not see what an unbiased observer would see clearly. Other times, the anomalies were simply taken to be invalid or the challenging research was deemed to have been improperly done.

The history of science also shows that occasionally anomalies were *not* ignored, either because they were simply too overwhelming to ignore or because there were enough practitioners with some intellectual, social, or economic motivation to pursue an alternative path. When such a group of dissidents was persistent and powerful enough, then, in Kuhn's words, a *paradigm shift* would occur. Such *revolutionary science* would then establish a new paradigm with a new set of subjects to be investigated, new methods for gathering and processing information, a new perspective from which to interpret the results of the new research, and a new set of textbooks from which students of science were taught. A paradigm shift would eventually put science on a distinct new path of routine innovations, or normal science.

Another finding from Kuhn's (1962) historical investigations is that revolutionary paradigm shifts did not always launch new paths of normal science that were more fruitful than the earlier paths. Valuable knowledge from the past was often lost or simply ignored by practitioners within the new paradigm. In short, Kuhn found that science did not follow the scientific method, which demands objectivity, distinguishes truths from mere hypotheses, maintains an openness to new ideas, and requires that disproven hypotheses be abandoned.

The history of economic thought

Kuhn's ideas are quite relevant to the history of economic thought. At any given point in time in each country or region of the world, one paradigm has tended to dominate the field of economics. But, occasionally there were paradigm shifts. For example, Adam Smith's *Wealth of Nations* was a revolution against the physiocrats and mercantilists before him. On the other hand, the Classical school, which introduced many routinized methodological advances such as more rigorous models, built on Smith and was, therefore, not entirely a paradigm shift in relation to Smith. The Marxist paradigm was clearly revolutionary in the field of economics, as was the narrowly-focused neoclassical school that followed the broad perspectives of economic activity by the principal members of the Classical and Marxist schools of thought. The Keynesian paradigm represents an example of a failed revolution, one that gained some interest but ultimately was abandoned in favor of returning to the neoclassical path that was followed by most economists before the Great Depression. Today, heterodox economists bring out many anomalies that refute the neoclassical paradigm, but mainstream economists cling to their neoclassical models and, as a matter of routine, ignore heterodox approaches.

The role of culture in science

Science fails because scientists fail to adhere to the scientific method, and this failure is to a considerable extent due to the power of culture over human behavior. Humans accumulate a wide range of beliefs, preconceptions, conventions, and familiar patterns that they routinely draw on to interpret the complexity in which they live and work. They use these beliefs and familiar patterns to make quick decisions on all kinds of matters over the course of the day. People simply do not have time for long deliberations about what to have for lunch, how fast to drive, what to say to someone in the hallway at work, etc. So we draw on all kinds of rules of thumb (heuristics), habits, customs, and commonly observed patterns of behavior to guide us. But, humans also follow patterns when it comes to big issues like how to organize their lives and careers. Here the motivating factor is not so much time, but complexity. People do not fully understand their social, economic, and natural surroundings, yet they must make decisions that they know have long-term consequences. So, again, they resort to beliefs and perceived patterns that they derive from some set of recently observed events.

Research in psychology and behavioral economics shows that it is quite normal for humans to develop simplified patterns to explain life's complex experiences and events (e.g., Lebeouf 2002, Medin and Bazerman 1999, Frederick 2005). Neuroscience provides ample evidence suggesting that the automatic and emotional processes of the human brain are indeed guided by the recognition of patterns. They tend to interpret everything that surrounds them over the course of the day according to familiar patterns that they have come to see as normal. These perceived patterns gain such strength that even when actual observations do not, in fact, precisely match the familiar patterns, people tend to adjust their perceptions to the point where they effectively fit the anomalous facts into those familiar patterns. Frederick (2005) shows that even the most intelligent people routinely misinterpret observations because they force observations or issues into some familiar pattern that actually does not represent the true situation.

Such misinterpretations of reality are common in the history of economic thought as well. A good example is how Adam Smith's (1776[1976]) interpretation of the Mercantilist view on international trade was shaped by his own Scottish banking and market culture. He thus accused the mercantilists of simplistically 'maximizing net exports' by means of trade restrictions, while he ignored the political economy of Mercantilist policies and their tight relationship to the economic and political circumstances of the time.

Economists are certainly not the only ones who use patterns, or *models*, to help them navigate complexity. In general, the thinking of practitioners of a given field is strongly influenced by an array of 'patterns' that comprise their informal institutions, norms, traditions, habits, and ideologies. North (2005, p.15-16) suggests that humans effectively try to make sense of the complexity of their existence by embracing:

> ...non-rational explanations embodied in witchcraft, magic, religions; but partly by more prosaic non-rational behavior characterized by dogmas, prejudices, 'half-baked' theories. Indeed despite the...assertion by eminent theorists that it is not possible to theorize in the face of uncertainty, humans do it all the time; their efforts range from ad hoc assertions and loosely structured beliefs such as those encompassed in the labels 'conservative' and 'liberal' to elegant systematic ideologies such as Marxism or organized religions.

It is these 'ad hoc assertions and loosely structured beliefs' and 'elegant systematic ideologies' that sociologists call *culture*. Culture provides metaphors, heuristics, rules of thumb, models, stories, traditions, rituals, norms, and many other guides for

action that enable humans to make decisions under the extraordinary complexity of daily economic and social life.

Bourdieu's framework for understanding culture

The early twentieth century sociologist Max Weber (1978) explained that people generally embrace more than one culture because an individual's position in society often cuts across traditional concepts of class or subcultures. Cultures operate on many levels, and specific professions and fields develop their own (sub)cultures within broader national, ethnic, religious, and other social cultures. The French sociologist Pierre Bourdieu (1977b, 2000) draws on Weber's ideas and provided a framework for sociological analysis that is especially relevant for analyzing how the culture, or better *subculture*, of the field of economics evolved within the broader cultures of social science, the workplace, and human society as a whole. More important, Bourdieu's sociological framework provides insight into why a particular subculture is so persistent even in the face of scientific evidence that clashes with its main tenets. Bourdieu was very critical of his fellow sociologists, who he felt were all too willing to engage in studies of foreign cultures without attempting to shed the constraints of their own cultures.

Bourdieu specifically defines a *field* as the social or intellectual arena within which people spend much of their day and within which they focus their efforts to advance their primary social interests. That is, people normally identify with a broad national or ethnic culture, but in going about their daily activities they tend to pay attention almost exclusively to their particular professional or close social environment. For academics, the term *field* is straightforward because most of an intellectual's life is spent within a well-defined intellectual field. Note, however, that Bourdieu's concept of a field is more general in that a field may be a social club where someone spends a large part of her time, a school or university environment when one is a student, or a sport to which a serious athlete devotes much of her time.

Bourdieu (1977b, 2000) explains that all scientists, including social scientists like sociologists or economists, develop a subculture because they have to deal with logical inconsistencies between the *objective* reality of their field and the mostly *subjective* dispositions, customs, rituals, and procedures that have developed over time in their particular field. He calls these subjective dispositions, customs, mannerisms, dispositions, etc. the field's *habitus*. While the habitus is not entirely a constant, inconsistencies inevitably develop because the patterns of action and

behavior that characterize a certain field are not easily or quickly changed in response to fast-moving changes in the reality that the field deals with. People often have difficulties in dealing with these inconsistencies, which leads them to go against their own sense of logic and embrace a *doxa*, which Bourdieu (1977b) defines as the set of unsubstantiated beliefs and concepts that are held beyond dispute or question. Bourdieu's doxa is close to what North called 'half-baked ideas' above. The doxa provides a convenient story or philosophy that helps us reconcile the seemingly arbitrary behaviors in the field's habitus with the tendency for the human brain to want to rationalize a person's existence. A doxa reflects a deeper set of patterns, stories, and concepts than those in the procedural habitus that guides people's minute-to-minute behavior in their field. The doxa serves to justify what otherwise makes little sense. A well-entrenched doxa effectively blinds the practitioner to the reality of her field by forcing that reality into a familiar pattern. As noted, familiar and accepted patterns are critical for enabling people to interpret their circumstances and make decisions on how to deal with new or changing circumstances.

Following Bourdieu, therefore, what we call the *culture of economics* is the consistent combination of commonly-held beliefs and the accepted normal way of going about things in one's field, that is, the combination of the field's doxa and habitus. In one of his very last works, Bourdieu (2005b) argues that the field of economics has a well-developed culture. The habitus of mainstream economics includes the standard methodologies economists use in setting up their research, especially the neoclassical modeling framework. And, a large part of the doxa that supports that habitus consists of a set of *neo-liberal* ideas constructed around a faith in rational self-interested individualism, private enterprise, private property, free markets, and minimal collective or government interference. Among the metaphors that comprise the doxa of economics is the invisible hand, which represents the market system's alleged ability to translate the actions and choices of rational self-interested individuals and profit-maximizing businesses into optimal overall social outcomes.

The policies imposed on many indebted developing economies by the International Monetary Fund after the 1982 global debt crisis, the so-called *Washington Consensus* policies, were a direct reflection of this neo-liberal doxa. These policies included free trade, privatization of government assets, conservative monetary policies to reduce inflation, balanced government budgets, the elimination of labor market regulations, and diminished financial market regulation. The

current austerity policies in many indebted countries are another reflection of the Washington consensus and its underlying neoliberal doxa. It is not at all clear that these policies have actually improved human well-being anywhere, but they have resulted in little debate among mainstream economists. Of course, it is not the function of a doxa to generate debate. To the contrary, the doxa's function is to mitigate the urge for economists to question the arbitrariness of the methods and policy options that make up the field's habitus. The Harrod-Do mar model's direct conflict with the neoliberal doxa explains its ultimate rejection by mainstream economics.

The degree of enthusiasm with which an economist explains human economic interactions using neoclassical models thus reflects her comfort level with the neoliberal doxa of her field. Culture is a strong force for maintaining the status quo, and it helps to explain Kuhn's (1962) observation that science often resists change even in the face of an abundance of anomalies. It also explains the ability of the mainstream habitus of the neoclassical paradigm to effectively fend off the Keynesian revolution and the Harrod-Domar model.

Symbolic violence

Bourdieu (1977b, 1989) explains that culture is self-reinforcing. This survival power of human cultures and subcultures is due to the fact, well documented by psychologists, neuroscientists, and experimental economists, that humans are group animals who are very conscious of how they are perceived and treated by others. For example, Lebreton et al. (2009) use brain imaging techniques to detect the brain's reactions to social interaction with other people. They find that the portion of the brain that is stimulated by individual rewards and pleasures is the same portion of the brain that is stimulated by an individual's *share* of social rewards and pleasures. Decety and Lamm (2006) described how humans' ability to conceptualize another person's situation can often diminish the importance of mentally processing one's own first-hand experience relative to the urgency of processing feelings of pain and happiness experienced by others.

The so-called statistical happiness studies provide further evidence that people are more social than individualistic. Typical of such happiness studies, Blanchflower and Oswald (2000) use survey data from the Michigan Survey for the United States and the Eurobarometer survey for the United Kingdom over the period 1972-1998 to explain the variations in human happiness. Their statistical regressions show

that in both the United Kingdom and the United States, people are substantially less happy when, all other things equal, they are unemployed, not married, older, male rather than female, retired, or they have lost their spouse. Blanchflower and Oswald's statistical results thus suggest that, in order to achieve greater happiness, people should get married, stay married, stay employed, become educated, never retire, and males should contemplate a sex change. Happiness studies for many other countries confirm that people value marriage, status, respect of others, and participating economically in their societies. Humans across different cultures seem to be happier when they have a sense of 'belonging' and 'being valued.' In sum, people are social animals, not the cold self-oriented individuals the neo-liberal doxa implies. These conclusions are ironic, because they suggest that their group mentality and their implicit fear of alienation by their peers and superiors makes economists pre-disposed to cling to a culture that glorifies the fully rational and completely self-interested and detached individual.

The human fear of rejection by others and the desire for social relationships is fundamental to what Bourdieu (2001) calls *symbolic violence*. Cultural violence is a mechanism through which a culture protects and sustains itself. Symbolic violence occurs when members of a group use their hierarchical or group power to oppress group members or entire subgroups that have less power. Symbolic violence may be explicit and intentional, as in the imposition and enforcement of rules under which people in a field must work. Or, it may operate more subtly, sometimes even without explicit intent, as in the case of social forms of encouragement or disapproval. Smiles or frowns, welcoming or offsetting gestures, and kind or harsh language by superiors, colleagues, and friends has great power over human behavior.

In the field of economics, symbolic violence shows up in the choices of research collaborators, the awarding of research grants, editorial decisions at publishers and professional journals, the assignment of classes, the choice of economics textbooks, hiring procedures, and the ever-looming promotion and tenure decisions. Heterodox economists know that it is difficult and often distinctly unpleasant to openly reject elements of their field's habitus and doxa. Professional arguments and disputes, no matter how justified, are stressful in terms of friendship and career prospects.

The role of wealth and power

The power of culture to sustain itself and to induce conformity is well understood by powerful special interest groups such as the financial industry and large business

organizations. These latter groups engaged in increasingly sophisticated forms of cultural manipulation in order to expand their economic interests. Gramsci (1971) noted early in the twentieth century that powerful interest groups can easily maintain their privileged position even in a fully democratic society as long as they control ideology. Gramsci's 'ideology' is similar to Bourdieu's doxa. In this regard, the former chief economist of the International Monetary Fund (IMF), Simon Johnson (2009), recently wrote that the financial industry 'gained political power by amassing a kind of cultural capital— a belief system,' the result of which was that 'faith in free markets grew into conventional wisdom....' And, Wisman (2013, p. 922) points out that financial and business lobbyists and public relations officers actively manipulated the economics culture in order to induce economists to furnish '...support to free-market ideology, thereby lending 'scientific' support to right-wing policies.' In short, the neoliberal doxa of mainstream economics was at least in part an intentional consequence of outside manipulation.

There are many ways in which special interests shape the culture of the field of economics and, as in the case of the Harrod-Domar model, prevent unwelcome paradigm shifts. The financial industry shaped economic research by directly influencing the research of leading institutions such as the Federal Reserve Bank, the European Central Bank, the IMF, and the World Bank. Wealthy donors support many ideologically slanted think tanks, such as the free-market Cato Institute, the conservative Heritage Foundation, or the Post-Keynesian Levy Institute. Financial and business interests increasingly exploit universities' dependence on outside funding to influence research, hiring, and teaching by providing funds for clearly specified purposes or with coded but well-understood instructions. Sometimes the influence is more direct; Colander and Landreth (1996) document how the authentically Keynesian textbook by Tarshis (1947) was driven out of U.S. universities by a business-supported campaign directed at university administrators and trustees. The recent declines in public funding of higher education in many countries have, no doubt, made university administrators even more responsive to large donors' interests.

Special interests are thus able to control ideology by exploiting the power of culture and the effectiveness of symbolic violence to sustain that culture. The Harrod-Domar model, as well as the entire Keynesian paradigm that so effectively guided economic policy for two decades after World War II, could not consolidate its position in the economics culture because of the lingering power of the habitus and doxa that preceded it, duly reinforced by the intentional efforts by financial and

business interests to strengthen that earlier culture after the Keynesian paradigm gained favor during the Great Depression.

A sociological explanation for the Harrod-Domar model's demise

From a scientific perspective, Harrod-Domar model's fate should have depended on whether it was compatible with economic reality. There was indeed a need for growth theory following World War II, and there was a widespread fear that post-World War II growth would be unstable and potentially cause the world economy to fall back into a depression. This reality should have favored the Keynesian revolution in general and the Harrod-Domar model in particular. However, the habitus of the field of economics had not changed much even in the face of a Great Depression. Universities still operated much as they had before the war and the Great Depression, and the same people still dominated the professional hierarchy, made the hiring decisions, and wrote the textbooks. Policymakers were often still closely allied with conservative central bankers and capitalist industrial and financial firms.

As described in our first essay, the underlying doxa had not shifted enough to allow the full Keynesian model to become part of the habitus; only the simplified and partial IS-LM version of the *General Theory* was acceptable to most mainstream economists. Of course, one might still have expected the Harrod-Domar model to have benefitted from the Hicksian IS-LM model's popularity immediately after World War II. After all, the IS-LM model pushed the culture of economics towards accepting the need for economic policies to address macroeconomic imbalances. Even Paul Samuelson's (1948) textbook emphasized the circular flow and the need for monetary and fiscal policies to balance the demand and supply sides of the economy. But, prhaps the early success of the IS-LM model made the Harrod-Domar model unnecessary in the eyes of many development economists, since the macroeconomic balance maintained by active policies meant that economic growth could be comfortably viewed as a supply side problem. More likely, most economists were simply not predisposed to pushing the Keynesian logic any further than Hicks (1937) took his IS-LM simplification of Keynes' ideas. Development economists educated under the dominant economics culture were reluctant to accept the need for a complex dynamic Keynesian macroeconomic model for describing long-run economic growth.

Interestingly, Harrod and Domar themselves did not fight for their model. Ten years after he published his article, Domar (1957, pp. 7-8) seemed to concede to the new neoclassical Solow growth model when he wrote that he had an 'ever-guilty conscience' about his model having been applied to analyze long-run economic growth. Such an apology reflects symbolic violence at its worst. Nor did the majority of so-called *Keynesians* defend Harrod and Domar's extensions of their mentor's basic macroeconomic model. The limited accomplishment of seeing the IS-LM version of the Keynesian model in most mainstream textbooks may have been more than many Keynesian 'revolutionaries' had thought possible, so why push the issue by also insisting that the knife's edge Harrod-Domar growth model be taught? The demise of the Harrod-Domar model thus seems to verify that the complexity of the subject matter of intellectual fields like economics makes it almost impossible for any one person to make the case for change. Knowledge creation is inevitably a joint effort, but the symbolic violence of the reigning culture always makes it hard to assemble enough participants to complete a revolution, especially when the doxa provides potential participants with ample justification to not participate.

What difference would the Harrod-Domar model have made?

The likelihood that the power of culture, not overwhelming anomalies, stopped the Harrod-Domar model suggests that the model's disappearance may have been a mistake. Of course, most mainstream economists would probably argue that the model was objectively rejected and replaced by more accurate models. Therefore, before one can make the case that the cultural oppression of the Harrod-Domar model indeed prevented or diminished the advance in human knowledge, it is necessary to explain what further ideas would have flowed from the Harrod-Domar model and the Keynesian paradigm in comparison to the current popular mainstream combination of the Solow and the endogenous growth models.

The emphasis on technology

The Solow and endogenous growth models position technological change as the driver of long-run economic growth and development. If the Harrod-Domar model had survived the symbolic violence of the mainstream culture and the economic power of special interests, would development economics and growth theory followed paths that would have diminished the importance of technological change?

Alternatively, is technological change really as important as the Solow and Romer models suggest?

If the simplified Harrod-Domar model had remained prominent in the mainstream, its emphasis on the broader concept of investment rather than specifically technological change may well have weakened the interest in the latter. On the other hand, one would think that Schumpeter was well enough known for a more open mainstream culture of the Keynesian paradigm to have welcomed Schumpeter's ideas on technology. In general, there is no reason to assume that a growth model developed within the Keynesian paradigm would have ignored technology. To the contrary, Keynes' (1936, Chap. 12) reference to an 'expedition to the Antarctic' to illustrate the uncertainty of investment clearly shows that he had more than routine investment in mind when he discussed how uncertainty complicated investment decisions. Minsky (1978, 1982), who derived his *financial instability hypothesis* from Keynes' description of the precariousness of investment, also clearly had innovative projects in mind. For example, when Minsky defined the three forms of finance, he referred to 'projects' with uncertain outcomes rather than simple investment as defined in the textbook Keynesian aggregate demand equation.

It is, therefore, quite realistic to assume that with further research along the Keynesian Harrod-Domar path, economics textbooks could very well be teaching the following aggregate demand function,

$$Y = C(Y) + I(i, \Delta Y, \Phi) + R\&D(i, \Delta Y, \Psi) + G + (X\text{-}IM), \qquad (1)$$

in which routine investment I is a function of the change in output (the accelerator) and other variables that influence the finance of routine investment, Φ, while innovative activity, denominated as R&D, is a function of a complex set of variables, Ψ, that includes animal spirits and the capacity of the financial sector to handle the uncertainty of innovative activity. Innovation would also depend on past output growth to the extent that the past provides the 'conventions' by which entrepreneurs and innovators judge the future. Finally, innovation would depend on resource availability, entrepreneurial spirit, scientific curiosity, cultural incentives and barriers, the human desire to change some objectionable current state of affairs, and Schumpeter's (1934) profit motive. Equation (1) shows that the Harrod-Domar model can readily incorporate innovation along with routine investment, since both cause increases output as well as demand.

Interestingly, given the amount of time that often passes between costly research and development (R&D) activities and subsequent economic growth, compared to routine investment projects, innovative activity is likely to imply greater discrepancies between immediate demand effects and subsequent supply effects. Furthermore, since the outcomes of innovative activities cannot be predicted with certainty, policies to deal with the discrepancies between aggregate demand and aggregate supply are more difficult to plan in the case of innovation. Some innovative projects lead to years of follow-on innovations and investment, while others fail to generate any supply effects at all. Some projects, like gold mining using cyanide, corn ethanol plants, and irrigated wheat in Saudi Arabia, may do net damage. Many policy adjustments and revisions will be required.

Note also that predicting supply side effects of innovation, it is the application of technology that matters, not technology per se. The implementation of new ideas has been investigated by economic historians. For example, Cipolla (1978) traces the development and applications of the time clock over the centuries, and he finds that the growth effects of new technologies often lagged the initial technological discoveries by centuries. Macfarlane and Martin (2002) show that the discovery and applications of glass spanned millennia. Teresi (2002) describes a large number of inventions that were not put to practical use for centuries.

The endogenous growth models, such as Aghion and Howitt (1992) and Romer (1990), do not distinguish between discovery and application. Surely the Keynesian paradigm and its keen awareness of how varying economic conditions shift the behavior of consumers and producers would have motivated more realistic descriptions of innovator behavior beyond the simplistic long-run profit maximization underlying the inter-temporal maximization problems outlined in the endogenous growth models. The Harrod-Domar model's distinction between the demand and supply effects of investment, including investment in innovative projects, would have explicitly focused on the discrepancies between the demand effects of current expenditures on R&D and the supply-side effects of the eventual application of technology.

Thinking outside a very small box

A successful Keynesian revolution would have prevented growth theory from limiting its analysis and deeming as 'non-economic' so many of the issues that are central to evolutionary economic change. For example, even though the Solow

model generates diminishing returns to investment by assuming the supply of other productive inputs is constant, users of the model have seldom included any inputs other than labor. There are many other inputs into the complex process of economic development that are constant or very difficult to change. Diminishing returns to capital can be caused by fixity of supply of any inputs into the productive process, not just labor or human capital.

For example, exhaustible natural resources, by definition, exist in finite amounts, and nature's capacity to provide renewable resources is also limited by nature's capacity to provide its many ongoing services such oxygen, clean water, wind, pollination, etc. (Daly, 1977; Costanza et al., 1997). Permanent growth thus requires a very broad range of new technologies capable of augmenting the effective supplies of all productive inputs. Especially difficult are the technological developments necessary to sustain biodiversity in the face of material economic growth. But, the non-market nature of most interactions between humans and nature makes the neoclassical Solow model and the profit-driven Schumpeterian endogenous growth models inappropriate for dealing with such issues. A Keynesian paradigm, being at the same time more practical and open to collective government action, would almost certainly have pushed economic analysis further towards addressing some of these broader environmental issues.

Economic stability

The inherent instability of the Harrod-Domar model would have pushed its users to seek explanations and solutions for economic instability. Keynesians have always recognized that the principle problem of macroeconomics is financial instability, and not coincidentally, the era of Keynesian policymaking between the end of World War II and the early 1970s was characterized by few financial crises. Given that the Keynesian paradigm's recognition of the potential for financial and economic instability helped to maintain the tight regulatory regimes that constrained finance in most countries, one wonders whether the Harrod-Domar model's emphasis on the potential dynamic instability of the growth process would have provided the regulatory and policy protection that could have avoided the repeated financial crises that have hindered economic development in the third world after 1980. No doubt, had a financial crisis occurred, the answer would not have been the unsuccessful array of Washington consensus policies introduced after the 1982 debt crisis or the austerity policies widely introduced in developed economies after the 2007-2009 global crisis.

Economics is the study of provisioning, not just market activity

It is also likely that if the Harrod-Domar model and the more general Keynesian paradigm had become solidly placed in mainstream economics we would no longer be entertaining the preposterous idea that economics is only the study of markets, as some economics textbooks now openly contend. Numerous heterodox economists, and most feminist economists, have insisted that economics should be defined more broadly as the study of *provisioning* in full recognition of the social nature of human economic activity [1]. Writes Nelson (1995, p. 143):

> ... a definition of economics as concerned with the realm of 'provisioning' breaks down the usual distinction between 'economic' (primarily market-oriented) activities and policies on the one hand, and familial or social activities and policies on the other. The absence of entries for household production in the National Income and Product Accounts illustrates the way in which such a bifurcation has structured economic analysis, and the concern of many feminists about this neglect is relatively well known...

Nelson also notes that Adam Smith (1776, p. 1) referred to economic activity as the production and distribution of all 'necessaries and conveniences of life,' not as exclusively market activity.

Diverse social scientists also view economic activity more broadly than neoclassical economists do. For example, sociologists like Durkheim (1908) and Parsons (1960) studied forms of human economic interactions other than markets, and Beckert (1997) shows that in many cases other social structures provide more efficient economic outcomes than markets. The social anthropologist Graeber (2011) suggests that, in general, economic interactions fall into three broad categories, only one of which can be modeled by a market mechanism: exchanges based on a clear perception of *reciprocity*. Graeber (2011, p. 95) notes that many, if not the majority of, human interactions reflect the principle of 'from each according to abilities and to each according to need.' That is, humans 'act like communists a good deal of the time' by doing what they know how to do while also accepting assistance from others when they need it, all without any calculated sense of reciprocity. Such *communistic interactions* are common in families, in the workplace, in organizations and unions, and in public areas among random strangers. Last time you asked someone for directions, didn't some stranger graciously provide them without charge? Thirdly, many interactions follow norms, traditions, and other cultural institutions that legitimize established social and economic hierarchies. *Hierarchical interactions* are common in business and social organizations. Also,

human interaction with nature is effectively hierarchical as humans simply take what their economic power and technology let them take. Simply put, the idea that all economic interactions can be modeled as market exchanges is incorrect.

Neoclassical economics, by limiting its analysis to a competitive market economy, cannot explain true aggregate economic activity. Most likely, a culture more compatible with Keynesian thinking and models such as Harrod-Domar's knife's edge model are more receptive to including collective action among policy options and to include it in its critical analyses. A Keynesian revolution would have empowered economists to study the role of business organizations in the economy. Mainstream growth theory has very little to say about the growing presence and power of multinational business organizations, but meanwhile nearly all international trade involves at least one large multinational firm and over one-third of global trade never leaves the corporation when it crosses borders.

Life with a Keynesian habitus and doxa

Humanity's most pressing economic problems require policies that promote *sustainable* economic growth, financial stability, and a better sharing of the gains from economic activity. These policies fall in the realm of Keynesian economics, not the mythical construct that is neoclassical economics. The underlying circular flow of the Keynesian macroeconomic model sustains a very different metaphor than that of an invisible hand. The circular flow serves as a constant reminder that human interdependence and collective behaviors can generate outcomes that exceed, or fall short of, the sum of the system's individual parts, and that collective action can be taken to improve the performance of the complex social economic system. The Harrod-Domar model, furthermore, raises this awareness within a dynamic framework, and it clearly shows that instability is not just a short-run problem. Human history has many examples of societies that experience long-run expansions and declines, with no apparent convergence to some stable equilibrium. [2]

Some final observations on culture and power

This essay has drawn on the observation that human cultures evolved to enable highly conscious social animals like humans to function in the complex social and economic environments they have constructed. These cultures are powerful influences on human behavior and action.

Culture's power to influence the decisions and actions of humans implies that those whose social and economic interests closely coincide with the dominant habitus and doxa will better satisfy their needs and wants than those whose interests are at odds with the effects of culture. George Monbiot (2011) is probably correct about the neo-liberal doxa of economics when he writes that the freedom from government regulation often becomes 'the freedom of the powerful to exploit the weak, the rich to exploit the poor.' Worse, a culture's power and the symbolic violence that sustains it means that those who challenge the reigning culture are destined for a very long conflict that is unlikely to change the culture in their favor. This self-perpetuating power of culture means that those privileged by the social culture are in a good position to sustain that culture against the interests of those outside the prevailing culture.

It has often been noted that mainstream economic thinking is largely compatible with business and financial interests. The economic historian Robert Heilbroner openly recognized this when he stated that '[t]he best kept secret in economics is that economics is about the study of capitalism.'[3] Economists, therefore, have been led to provide useful intellectual support for these favored groups and to effectively help them achieve many of their aims, especially in the United States and the United Kingdom.

The idea that economists serve the privileged class conflicts with what Keynes (1936, p. 383) wrote at the end of his *General Theory*:

> Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back.

That is, Keynes believed that economists eventually determine the direction of economic thought. Keynes (1936, p. 383-4) optimistically added:

> I am sure that the power of vested interests is vastly exaggerated compared with the gradual encroachment of ideas. Not, indeed, immediately, but after a certain interval; for in the field of economics and political philosophy there are not many who are influenced by new theories after they are twenty-five or thirty years of age, so that the ideas which civil servants and politicians and even agitators apply to current events are not likely to be the newest. But, soon or late, it is ideas, not vested interests, which are dangerous for good or evil.

Robert Skidelsky (2012), the author of the most noted biography of Keynes, commented at the conclusion of the 2012 Post-Keynesian Economics Conference that, after a lifetime of analyzing Keynes and his economic thinking, he had become convinced that Keynes' greatest weakness was his failure to grasp the importance of economic and political power over economic policy. Said Skidelsky:

> This brings me to my main criticism of Keynes. The idea that economic outcomes could be impacted by class power was beyond his ken.... As Keynes famously put it at the end of the GT [General Theory], 'ideas' are more powerful than 'vested interests'. The almost contemptuous dismissal of the non-ideational elements of the economic system as 'vested interests' shows that he lacked proper cognizance of them.

Skidelsky (2012) went on to explain how Keynes may have thought that he could outsmart the vested interests of his time:

> Keynes's re-definition of the economic problem of his day as a technical problem in economics was politically very convenient. Practical businessmen are quite receptive to new ideas providing they allow them to keep their profits and managerial prerogatives. In the interwar years deficient demand leading to mass unemployment was a threat to both, not least because it aroused social hostility to capitalism. Keynes was definitely preferable to Marx. So they were happy for the state to look after demand and protect them from the unions, even to acquiesce in modest measures of redistribution to keep the people happy.

But today, with Marxism virtually eliminated as a viable alternative paradigm and the pro-business United States the remaining hegemon whose military and cultural power dominates the global economy, the vested interests of international business and finance no longer feel the need to keep anyone 'happy.' Wages are being slashed, collective government assets are being privatized, and the rest of the neoliberal agenda is being aggressively pushed through most Western governments in the interest of business and finance. And, all this is happening with the approval of most mainstream economists.

More than ever, wealthy business and financial interest now shape economic thinking. It is the latter's lobbying and influence that have made deregulation, privatization, smaller government, free trade, deregulated finance, the weakening of labor rights, the suppression of environmental legislation, austerity, tax reductions, and other Washington Consensus policies the legislative agenda in so many countries. Unfortunately, economists seeking employment, professional advancement, recognition, and financial reward have at best avoided challenging

this cultural hegemony, more often they have actively sought to please those special interests.

Baker (2013) made this point recently in describing the revelations of major technical errors in the work of Rogoff and Rheinhart (2009), a study that was actively used to justify the policies that raised unemployment, skewed the income distribution even further, and reduced the role of collective government actions:

Politicians are acting based on the demands of their political supporters. They don't get elected based on their beautiful political philosophies... When the mainstream economists tell us that the pushers of austerity would have done so even without Reinhart-Rogoff, this is not news. However, the Reinhart-Rogoff story was hugely important in selling the austerity case to the larger public. It is much easier for politicians to say that we have to cut Social Security for widows and Head Start for children in order to avoid two decades of stagnation, than for them to say that these cuts are necessary in order to ensure that their campaign contributors don't have to pay more in taxes....the Reinhart-Rogoff story was used with great success towards this end. In fact, the 90 percent debt-to-GDP threshold became a fixture in the Washington budget debate after it was included in the report by the co-chairs of President Obama's deficit commission, former Senator Alan Simpson and Morgan Stanley Director Erskine Bowles.

In short, economic power drives both economic policy and the ideas that permit the powerful to legitimize their capture of unwarranted shares of national income and wealth.

It is probably fair to say that few mainstream economists are consciously aware of how their culture sustains their intellectual support of the special interests. Meanwhile, the neoliberal doxa of individualism, free markets, and freedom of choice stealthily justifies the neoclassical habitus that professional economists unquestioningly continue to use to generate studies that reach conclusions such as that financial re-regulation would delay economic recovery, active macroeconomic stimulus policies would deter investment, and higher taxation of the wealthy would not reduce income inequality. Of course, from a scientific perspective, the ease with which economists are seduced by their culture is only slightly less objectionable than outright corruption.

Bourdieu (1977a, 2005a) argued that culture's power to bias the thinking of the practitioners in a field of social science can only be overcome if practitioners first

understand that culture. Hopefully, this essay's discussion of how the Harrod-Domar model clashed and was eventually defeated by the subculture of economics provides useful insight that will help economists, one day, to act to recognize and neutralize the oppressive power of their field's culture.

Endnotes

[1] See feminist economists such as Nelson (1995), Wood (1997), Folbre (1994, 2006), and Waring (1998).

[2] See, for example, Diamond (2011) for many examples of long-run economic and social collapses.

[3] Quoted in Palley (1998), p. 15.

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