

## For a heterodox mainstream economics: an academic manifesto

**Abstract:** *The hard core of neoclassical economics (general equilibrium, rational expectations macroeconomics, and endogenous growth models) is essentially mistaken because it adopts a hypothetical-deductive method that is suitable for the methodological sciences, whereas a substantive social science requires an empirical or historical-deductive method. Although Marshallian microeconomics is also hypothetical-deductive, it is a major achievement because it actually founded a methodological science: economic decision making, later completed by game theory. As deductive thought allows for mathematical reasoning, the resulting models are apparently scientific and constitute the core of mainstream economics. But often they are economic “reasonings,” not real theories able to predict and orient. This fact became obvious in the 2008 global financial crisis. Now is the time to change the mainstream; and the present paper is an academic manifesto in this direction. We need a modest and pragmatic economic theory—a Keynesian-structuralist economics that takes into consideration not just agency but structures and institutions too.*

**Key words:** *heterodoxy, mainstream, method, orthodoxy, reasonings, theories.*

Suddenly, in the aftermath of the 2008 global financial crisis, we all realized that the king was naked. Neoclassical economics, dominant since the late 1970s in universities and in policymaking, repeated the fiasco of 1929: it proved once again unable to explain and predict the behavior of economic systems or to orient policymaking. Based on the assumptions of *homo economicus* and of rational expectations, and adopting a hypothetical-deductive method, neoclassical economics maintained that markets were efficient and self-regulating. They were not. It also maintained that existing market failures were essentially minor, whereas they are major and pervasive. It claimed that to ensure financial and price

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stability, fast growth, and fair income distribution, it would be enough to guarantee markets, to protect property rights and contracts, and to keep the public finances in balance, but this was also false. Although market competition was supposed to cause fast growth automatically, historical experience consistently demonstrated that catching up requires active state action. Although deregulated financial markets were supposed to guarantee financial stability, the enormous increase in asset bubbles and financial crises after the collapse of the Bretton Woods agreement proved that this was just not true. Nevertheless, the fall of the Berlin Wall in 1989 and the victory of market economies over the central command economies obscured these simple truths. A triumphant neoliberalism saw in these events the confirmation of the superiority of fully free markets, and the confirmation of the theory that justified it—neoclassical economics.

In the academic realm, the prospect of building sophisticated and relatively consistent mathematical models using the hypothetical-deductive mathematical models (whereas Post Keynesian macroeconomics and structuralist development economics use the historical-deductive method that does not require or allow sophisticated mathematics) made neoclassical economics increasingly attractive to the economics departments of the main universities. Platonism—the belief that truth and reality are in the ideas to be achieved through pure rational reasoning—always attracted philosophers and intellectuals. Aristotle criticized the essentially unscientific character of such an approach long ago. Today, for substantive sciences, there is a reasonable consensus that scientific claims require demonstration of consistency to reality.<sup>1</sup> The truth criterion for substantive sciences is the consistency of its claims to reality, not its internal coherence. But neoclassical economists ignore this principle and view the mathematical and relatively consistent character of its core theories to be “proof” that they were “scientific.” On the other hand, they saw in the abstract models derived from the hypothetical-deductive method a practical device for distinguishing graduate from undergraduate teaching.

In the 1990s, while Nobel prizes were awarded to economists in recognition of their mathematical efforts, the dream of perfect markets came to be seen as embodied in the Anglo-Saxon model of capitalism that neoclassical economics justified. But soon this hegemony was lost because the respective institutional reforms and the economic policies failed to deliver their promises. On the other hand, behavioral economics

<sup>1</sup> I adopt a classification of sciences into methodological sciences (mathematics, statistics, econometrics, decision-making theory) and substantive sciences that may be natural or social.

repeatedly demonstrated with experimental research that the assumptions of *homo economicus* on which the hypothetical-deductive method is based were just fiction.

All this is true. Everything condemned neoliberalism and neoclassical economics. Everything indicated that economists should be less arrogant and ambitious in terms of economic theory, and more down-to-earth in understanding or interpreting economic systems. Everything suggested that in order to achieve growth we should go back to the more modest historical-deductive models developed by the classical economics and by structuralist development economics, and that in order to achieve full employment, stable prices, and financial stability we should return to the macroeconomics of John Maynard Keynes, Michal Kalecki, and Hyman Minsky. Yet for 30 years neoclassical economics legitimized a radical free-market ideology, while laypersons in economics (the immense majority of citizens) deferred to a body of knowledge that had a major impact on their lives but which they felt unable to understand because of its mathematical sophistication. A financial crisis as deep as that of 2008 was necessary to make politicians and citizens lose confidence in orthodox economics and policymaking, and to make an increasing number of economists ask about the real “foundations” of their science.

Actually, what is required today is a radical critique of neoclassical economics—a methodological critique—and critique of orthodox policymaking, and the offering of sensible alternatives. In substitution, we already have available theories that adopt the historical-deductive method: general economics (the sum of basic knowledge that the economics profession shares independently of the school of thought), Post Keynesian and old institutionalist economics, structuralist development economics, and much of the classical or political economy school. Because such theories are historical, they must be permanently reviewed and actualized. As to a responsible policy alternative, among other initiatives economists of rich countries should study the new developmentalist strategy that structuralist economists have been developing and discussing in the past few years.<sup>2</sup> Actually, what is necessary is not just one theoretical alternative, but a plurality of alternatives; not formal and fully encompassing, but more modest and less plagued by certainty alternatives that use the

<sup>2</sup> On new developmentalism, see the “Ten Theses on New Developmentalism,” subscribed originally in 2010 by 80 structuralist and Post Keynesian economists ([www.tentheseonnewdevelopmentalism.org](http://www.tentheseonnewdevelopmentalism.org)), and an account of the development of these ideas in Brazil where they were born having as inspiration the performance of fast-growing Asian countries (Bresser-Pereira, 2011).

historical-deductive method and search to make sensible interpretations of how economic systems work.

In this paper, I argue in favor of a new mainstream—a mainstream that is *modest* with respect to the truth, *plural* because it is open to different approaches to a very complex and changing reality, and *heterodox* because whereas heterodoxy is no guarantee of being right, orthodoxy is always wrong and evil, because orthodoxies imply certainty and intolerance. And I offer rhetorical strategies that may be helpful in achieving this objective.

### **The neoclassical core**

Mainstream economics—the economics that has been taught in the graduate programs of the more prestigious universities since the late 1970s—is today a varied and often contradictory constellation of knowledge.

The neoclassical core is made up of a cluster of hypothetical-deductive models that aim to offer a closed and all-embracing view of a timeless economic system. In the same way as mathematics and statistics start from some axioms in order to develop their methodological science, neoclassical economics begins from the assumptions of perfect rationality or self-interest, diminishing returns, the ergodic character of economic events, and of highly (not necessarily “perfectly”) competitive markets in order to deduce the whole economic system. The main outcome of such methodological individualism has been the general equilibrium model. This is an incomplete model, an economic system where there is no money; it is just a nice abstraction. To have it as the core of economics is something that hinders rather than helps the understanding of economic systems. If, instead, we assume that economic agents are often not so rational, that markets are institutions that only work reasonably well when they are well regulated, that events are nonergodic, and that we often have increasing returns, we will be less “precise,” but it will be less probable that we will make major mistakes and will cause major financial crises. We will not be victims of the mistake that Paul Davidson briefly summarized referring to neoclassical economists: “they prefer to be precisely wrong to be roughly right and accurate” (1992, p. 65).

In the 1930s, due principally to the contributions of Keynes and Kalecki, a new and powerful model explaining economic systems emerged—macroeconomics—using a historical or empirical approach to the understanding of economic systems similar to that adopted by the classical political economists. For that reason—and also because macroeconomics concluded that permanent state regulation of markets was needed

to achieve stability and full employment—neoclassical economists rejected it. They rejected it for its lack of precision and for ideological reasons. “This model lacks microfoundations!” they exclaimed. And they proceeded to search for the Holy Grail—a macroeconomic model consistent with microfoundations or with individual rational behavior. In the 1970s, Robert Lucas was the “hero” of this quest. On the basis of his model, in which rational expectations played a major role, it was possible to build a macroeconomics endowed with microfoundations and also to demonstrate that economic policy is ineffective because it is neutralized by the expectations of economic agents.

But there was one problem still to be solved: making the model dynamic and endogenous. Robert Solow devised a growth model that was consistent with the neoclassical assumption of the full substitutability of labor for capital and vice versa, but in his theory technological progress was exogenous. In 1986, Paul Romer, followed by Lucas, mastered the formidable mathematics that made technological progress an integral part of the growth model—an endogenous variable. It is true that, before them, Adam Smith, Karl Marx, and Joseph Schumpeter had already come to this conclusion and included it in their theory of economic development, well, but they had not demonstrated it formally, mathematically—and this is the only thing that counts with neoclassical economics. After these two additions, economics was viewed as “complete”: “all problems had been solved.” I never heard this claim in relation to the endogenous models, but in relation to macroeconomics I personally heard it from Robert Lucas in the 1980s during a visit to São Paulo. And now that macroeconomics was “complete,” because he had resolved all macroeconomic theoretical problems, he had changed his focus to growth theory.

The new ideas took hold in the universities; they produced the New Classical Economics school at the University of Chicago and the New Keynesian Economics school at MIT and Harvard University. Although the New Keynesian Economics school is less orthodox or less radical insofar as it takes into consideration the market failures that are essentially ignored by the New Classical Economics school, both schools are within the core of neoclassical economics, and both develop and teach axioms-based mathematical economics. The debate among their members may be interesting, but it is domestic and ultimately irrelevant.

This is the neoclassical core. Essentially, it is a hubristic castle in the sky, without empirical legitimacy; a product of Platonism—the absurd belief that rational ideas exist independently from reality, an intolerant truth, a new version of medieval scholastics. In truth, the neoclassical core is a nonfalsifiable model that cannot and need not be empirically or

historically demonstrated. The implicit *truth criterion* is not conformity to an empirically verified reality, but internal coherence, logical consistency—the criterion of the methodological sciences. If reality is not in conformity with the model, this does not mean that the model is wrong. It just means that the market is wrong, and when the market failures are solved, reality will faithfully reflect the true and flawless model.

Do I mean to say that all neoclassical macroeconomics theorizing is useless? Yes. Or, in the words of Willem Buiter (2009), who adds technical competence to having been an external member of the Monetary Policy Committee of the Bank of England, neoclassical economics is “inward-looking distraction at best.” In his words:

Most mainstream macroeconomic theoretical innovations since the 1970s (the New Classical rational expectations revolution associated with such names as Robert E. Lucas Jr., Edward Prescott, Thomas Sargent, Robert Barro etc., and the New Keynesian theorizing of Michael Woodford and many others) have turned out to be self-referential, inward-looking distractions at best. (ibid., p. 1)

Or, in the words of Narayana Kocherlakota, President of the Federal Reserve of Minneapolis:

I believe that during the last financial crisis, macroeconomists (and I include myself among them) failed the country, and indeed the world. (2010, p. 1)

Many neoclassical macroeconomists resisted the “purity” of rational expectations macroeconomics and tried to be more empirical. Edward Prescott made an apparently more “successful” attempt in this direction, but his “real business cycle” theory that became dominant in the universities from the late 1990s is just a new version of rational expectations reasoning. Crises are not related to the business cycle but derive from exogenous technological shocks that were modeled or simulated with the help of sophisticated mathematical instruments using real data. As for unemployment, it remained the outcome of a rational choice on the part of workers.

More successful in separating itself from the neoclassical core was the “new economics,” related to the works of Paul Krugman and Joseph Stiglitz, who emphasized imperfect market competition, asymmetric information, and increasing returns of scale. But, as William Milberg remarks, “the New Economics did not cause an abandonment of choice mathematical modeling” (2004, p. 6). Yet, in policymaking, these two distinguished economists were able to fully distinguish themselves from

orthodox analysts and policymakers. And I do not believe that Krugman (1999) would repeat today something that he said years ago: that economics only turns science when it is formalized, that (using his example) the Rosenstein-Rodan (1943) big push model only turned science when it was formalized by Murphy et al. (1989).

## The two methods

The correct and definitive critique of the general equilibrium model and rational expectations macroeconomics is not empirical, but methodological. Insofar as neoclassical economics uses an inadequate method, the outcome is necessarily mistaken. I developed this methodological critique more extensively in a recent article, “The Two Methods and the Hard Core of Economics” (Bresser-Pereira, 2009). There are two basic scientific methods, the hypothetical-deductive and the historical-deductive, which correspond to two types of science, the *methodological* sciences, which have no objective but to aid thought (like mathematics, econometrics and economic decision-making theory), and the *substantive* sciences, which have an object or a system to explain, and must be subdivided in two types, namely, the natural sciences and the social sciences. Both substantive sciences are supposed to be studied empirically; scientists are supposed to use the *scientific method*, which proceeds from the definition of hypotheses that are subsequently tested against the real world. If the observation of reality permits the scientist to infer regularities and tendencies that reasonably confirm his or her hypotheses, he or she will be able to define concepts and make first generalizations or “laws,” deduce from them second-level and third-level generalizations, and so gradually build a science.

In the natural science, this empirical-deductive method has been highly successful; in the social sciences such as economics, it has been less successful, for well-known reasons: because, unlike atoms or cells, individuals are free and, so, unpredictable; because they learn and change their behavior; because institutions also change their behavior; and because a general uncertainty permeates individual behavior and economic analysis. For sure, individuals are rational, but making them rational does not make them certain or predictable—not only because they act on the basis of emotions, or because they ignore, or have a limited knowledge of, the consequences of their actions, but because their objectives go beyond immediate gain. They are reasonably rational, but not rational optimizers; they are rational decision makers—men and women who make choices under uncertainty.

If economic agents are rational decision makers, not optimizers, one cannot develop a science hypothetical-deductively as mathematicians or decision theorists do. If the elements with which one works are highly predictable, as in the case of the elements dealt with by physicists, the deductive aspect of the empirical-deductive method may be empowered. That is why theoretical physics is a successful branch of physics. But when human beings are involved, the hypothetical-deductive method is definitively unacceptable. It allows for mathematical models, models that seem much more precise but in fact are just an illusion, a way of satisfying our arrogance, a way of restricting knowledge to an elite, a device to make one seem a true scientist. Such models are not just unable to explain economic systems but lead to error; they are ideological tools to justify radical economic liberalism and to reject much-needed market regulation—the essential condition for making the wonderful coordinating institution that is the market work well.

The outcome of all that is that economics is or should be a *modest* science—a science that is committed to the truth, but whose participants know well that they may never be sure that they have attained it. It is a science where the logic of justification should be observed but where the logic of discovery is more important or more necessary. One of the reasons the scientific method is limited is that new economic facts are always occurring and require new theories to explain them. That is the reason it is necessary to combine the historical-deductive method with the method of the *new historical facts*. Existing models may be able to explain some phenomena such as inflation, but, at a given moment, a new historical fact occurs—for instance, agents start indexing prices formally and informally—and this historical new fact requires a new theory—the theory of inertial inflation—to explain it.

Economists may find this view frustrating. They would like to master a harder kind of knowledge. A knowledge that has a beginning, a middle, and an end, where causes and effects are well defined, where all relevant variables have been taken into consideration; a knowledge that can be precisely expressed with mathematics. But this is a Platonist illusion. As Krugman has remarked: “As I see it, the economics profession went astray because economists, as a group, mistook beauty, clad in impressive-looking mathematics, for truth” (2009).

### **Reasoning and theory**

The constitutive models that constitute the neoclassical core are essentially wrong—and I am not going too far in saying that—because



they adopt an *inadequate* method, the hypothetical-deductive method, but when I use the wrong method I cannot arrive at the truth. It is true that when I use the right method I will not be assured of arriving at the truth, but I may be pragmatically getting near the truth. I will never have such assurance when I try to develop a substantive and social science as economics.

Yet we should not mix neoclassical models with “economic reasonings.” Neoclassical models (from which I am excluding the decision-making or choice models) are models that attempt to explain and predict the behavior of economic systems, while economic reasonings are just *logical* relations between economic variables. They are not economic models, but reasonings, because models are generalizations of *actual* economic behavior involving a cause-and-effect relation, not just logical relations between variables.

Take, for instance, the law of comparative advantages. It is just an economic reasoning, not a theory. It just says that trade between countries that produce the same tradable goods will be rational for both countries even if one of them has absolute advantage in the production of the two goods, provided that the less efficient country has a comparative advantage in one of them. As reasoning, there is nothing to object. But from this reasoning Ricardo derived a theory, a model, asserting that countries that would profit from their comparative advantages would grow more than the ones that would not do that. As a model or a theory, it is a wrong one, as history has demonstrated again and again. If, in the nineteenth century, Germany had believed in the argument of the Ricardian economists that its comparative advantages were in agriculture, it would not have developed a manufacturing industry substantially more efficient than the British one already in that century. An economic reasoning is a static logical exercise, whereas economic theories—in particular, growth theories—are theories that to be true must be more than logical; they must be practical or useful in orienting policymaking.

Another example is Robert Mundell’s neoclassical trilemma. It is again an interesting reasoning, but it is not a generalization of how countries make policies, because they do not work in the three points of the triangle but somewhere inside it, so that they can combine the three policies. The triangle of impossibilities is a piece of hypothetical-deductive and normative reasoning that, like the law of comparative advantage, may be very dangerous to the countries that mix it with an economic model and apply it hoping to achieve growth with stability. Although Schumpeter made no distinction between economic theory and economic reasoning, he probably had an intuition of it when he called the “Ricardian vice” the

inference of policy prescriptions directly from highly abstract models. Theories are built to predict behavior and orient policy. If they do not, if they are mere reasonings, they give rise to the Ricardian vice, and so they are not good theories.

The whole neoclassical approach is wrong because it is a sum of reasonings derived from the hypothetical-deductive method, and for that reason are not committed to reality but to an ideal of rationality. Heterodox economists (Keynesians, Schumpeterians, behavioralists, Marxists, old institutionalists, etc.) have been trying for a long time to show why each neoclassical model does not correspond to the economic systems that they are supposed to explain. This is a Sisyphean task because, even if the evidence shows that each neoclassical model does not correspond to reality, the neoclassical economist will retain the deep conviction in his or her heart and mind that it is right because it is internally logical, consistent, and can be demonstrated mathematically. In contrast, if we show that the neoclassical economist is using the wrong method, he or she will have to respond that it is not—and, in this case, he or she will not be able to offer a rational answer.

### **Marshallian microeconomics**

It is the neoclassical core that heterodox economists should fight; not all economists that are viewed as part of the mainstream. Many of them have made or are making contributions to economic theory. Many supposedly neoclassical economists are able to contribute to economic knowledge and to make sensible policy proposals because they are pragmatic and ignore the neoclassical core. They just take into consideration what I call “general economics”—the sum of basic concepts and models that are taught in introductory courses. In a new mainstream economics these economists and their research traditions or schools should be welcomed. I refer to schools of thought such as Behavioral Economics, which demonstrated how limitedly rational are economic agents, and Classical Institutional Economics of Thorsten Veblen and John R. Commons, which played a major role in defining policies in the first part of the twentieth century in the United States. New Institutional Economics could fall in the same category if limited to the use of the concept of transaction costs in microeconomic reasoning. In this case, it would be part of decision-making theory. As John B. Davis observes referring to behavioral and institutional economics and to game theory, “these approaches all maintain fundamental assumptions at odds with neoclassical orthodoxy, and, thus, *should* be seen as heterodox” (2008, p. 355, emphasis in original).

The problem with microeconomics, or, more specifically, with Marshallian microeconomics, is different. It is usually viewed as part of the core of neoclassical economics, but this is a mistake. I view microeconomics as well as game theory not as part of economics but as constituting a *different* science: economic decision-making theory. Contrary to what Alfred Marshall intended and to neoclassical thinking, his hypothetical-deductive microeconomics did not provide the “microfoundations” for macroeconomics (combined with the general equilibrium model), but was the foundation of a methodological science called *economic decision making*. The great contribution of Marshall was the development of an extraordinary method of analyzing markets and making economic decisions. In Marshall’s graphic analysis, he is not saying *how* economic systems work, but how it should work if economic agents use rationally the heuristic models that he developed. This was not clear for him, but we know that unintended consequences of our actions may be wonderful. Marshall developed a hypothetical-deductive system of reasoning that is legitimate because it is used in developing a methodological science, because it does not say how economic systems work (this is what a substantive science such as economics is supposed to do), but offers a way of reasoning and making market decisions. It is no coincidence that in the wake of his major contribution many economists, beginning with Lionel Robbins (2007), decided to call economics “the science of choice.” It is not—economics is the science of economic systems—but Robbins’s definition shows how strong Marshall’s influence was. On the other hand, it is no accident that since the 1970s, microeconomics textbooks have devoted many pages to game theory; in so doing their authors have been setting microeconomics alongside an overt branch of decision theory.

Another branch of the mainstream that should be part of the new one is the Applied Microeconomics school, which is subscribed to by a large and ever-increasing number of economists. They make specific studies trying to correlate some variable with another with the help of econometrics: growth with capital accumulation, or with technological progress, or with institutions; inflation with the money supply, or with the budget deficit, or with previous inflation; educational performance with expenditures on education, or with a specific education method, or with the education of parents; and so on. Most of their research is not based in a “great theory,” but in some specific and often reasonable hypotheses. As Colander observes, “modern applied microeconomics consists of a grab bag of models with a model for every purpose” (2000, p. 139). Its practitioners, who today are largely dominant in the universities, believe that their studies are based on neoclassical economics because they do not clearly distinguish neoclassical economics from “general economics.”

The same reasoning applies to the simulation models that seek to simulate economic systems through a system of equations, stock-flow models included. They are often called “general equilibrium models,” but are not really based on the Walrasian general equilibrium model. Instead, they are based on a useful planning tool: Leontief’s input–output table. These simulations are always precarious, but may be useful if the specific models or partial theories behind them are good, if the data are reliable, and, above all, if they are treated with caution and used with prudence.

Finally, we have economic policymaking. The radical rejection of the neoclassical core that I am proposing and the formation of a new mainstream will make sense only if we distinguish it from economic analysts and policymakers. Among them there are competent professionals who make competent economic analyses and propose or adopt sensible economic policies. How can they perform relatively well, how can they often be right, if the theory in which they were trained in postgraduate economics programs, and which they assume to form the basis of their reasoning, is wrong? The explanations of this apparent paradox are simple. First, most of these economists are highly intelligent; doctoral programs in economics are very selective in their enrollments. Second, the programs do not teach them sensible economics, but do teach them to think abstractly; mathematics and micro-decision theory are very helpful in this respect. Third, they do not apply the absurd macroeconomic and growth models that they were taught in the doctoral programs, but the much more reasonable and modest economics that they have learned in good undergraduate textbooks.

### **The alternative**

A favorite activity of the neoclassical economist is to identify market failures and explain them with elegant formal models; this has been an unlimited source of Nobel prizes for their authors. Yet this does not help the economist much when he seeks to understand and analyze a given economic system. He starts reasoning from the general equilibrium model, but knows that the model cannot be directly applied, that the existence of market failures has to be considered.<sup>3</sup> The economist also knows that he is supposed to abandon one by one the simplifying assumptions that are present in general equilibrium theory. This is a laborious

<sup>3</sup> The disputes among new classical economists, new Keynesian economists, and the “new consensus” are irrelevant. They are all rational-expectations neoclassical economists.

task, full of traps. For that reason, and also because, in his heart, he does not believe that it is really necessary to move away from his beloved general equilibrium, he soon stops the exercise and moves back toward it. Because it was in this way that he learned to reason. Because only in this way do things stay in their right place and economic phenomena may be organized and examined in a way he understands. The alternative is to do what the competent heterodox economist does. It is to begin the analysis of the economic system by assuming that it is a concrete social system, with a history, and to use more modest and less encompassing models to understand it. It is to start from a model that includes market failures. This, too, is a laborious task that few heterodox economists are able to perform well. But the fact that they do not need to get rid of misleading economic reasonings before analyzing each actual economic system works in their favor.

Keynes understood well the pitfalls of theories based on *homo economicus*. When he referred to the “animal spirits” of business entrepreneurs, he was saying that they take decisions, that they make choices under uncertainty, taking into consideration not only their economic interests but also their penchant to invest and grow. When he emphasized the role of uncertainty in economics, he was rejecting the “precise” predictions that stem from hypothetical-deductive reasoning. When Minsky (1975) put uncertainty at the center of his Keynesian analysis of financial crises, he was confirming this view. When Davidson criticizes rational expectations macroeconomics because economic process is “nonergodic,” he is ultimately criticizing the assumptions of rational expectations:

Such expectations generate efficient, unbiased forecasts, which do not display any persistent errors when compared to actual outcome overtime, and, so, that information exists and is available for processing by all decision makers. This information, consisting primarily of quantitative time series data, it is assumed, is a finite realization of a stochastic process; from these data the probability distribution of actual outcomes today and for *all* future dates can be estimated. (1992, p. 65, emphasis in original)

All this would be fine if stochastic processes were ergodic: if their statistical properties such as mean and variance could be deduced from a single, sufficiently long sample of them. In fact, Davidson argues, they are not: they are nonergodic. Economic and social action can be *made* ergodic only as a consequence of the illegitimate adoption of the hypothetical-deductive method.

If we must reject neoclassical economics because it is a mistaken attempt to apply the hypothetical-deductive method to a social science,

because it is just a castle in the sky, what is the alternative? For sure, not another orthodoxy: not a Keynesian orthodoxy, or a Marxian orthodoxy, or a structuralist orthodoxy. In substantive sciences, and particularly in the social sciences, there is no room for orthodoxies. They are wrong by definition, because they admit just one approach to a complex reality that must be viewed and analyzed from different points of view. Instead of orthodoxy, a heterodox or plural economics is needed: not the product of the hypothetical-deductive method, but the outcome of the historical-deductive method. But this does not mean relativism (anything goes) or plain pragmatism (whatever works) but good pragmatic thinking that values theory and believes in the possibility of truth. The economist needs a broad theoretical framework, such as that developed by the mercantilist and the classical economists to understand capitalist development—the framework to which the central contributions were made by Smith, Marx, and Schumpeter. The economist also needs another broad framework to understand the business cycle and macroeconomic policy, along the lines of Keynes and Kalecki. These five major economists did not deduce their models sitting in an armchair. Instead, they built them using the historical-deductive method. In the eighteenth century, Smith realized that certain major economic changes were making England richer than China and was able to explain why and how to distinguish asset wealth from production wealth. Marx, almost 100 years later, fully understood the capitalist revolution and was able to develop a major model of capitalist development based on capital accumulation and technical progress. Schumpeter distinguished the nonactive capitalists, or rentiers, from the active capitalists, as Marx had done, called the latter “business entrepreneurs,” and gave them a central role in profit realization, innovation, and economic growth. Kalecki and Keynes analyzed the rich national economies after World War I, acknowledged their intrinsic instability, and proposed a new approach to understanding macroeconomic systems based on the observation of economic aggregates.

The theoretical frameworks that these great economists developed were historical-deductive. They are encompassing and illuminating frameworks that opened the way for the economic analysis of specific and historical economic systems. They are historical frameworks, because they are based on observation, because they result from the definition of concepts and from the verification of regularities and tendencies: not all fully defined or arhythmomorphic concepts, but, as Georgescu-Roegen (1971) remarked, largely—the more relevant ones—dialectical concepts that are open to different interpretations. Such frameworks assume the existence of regularities and tendencies that allow them to build models,

but not strong regularities, not definitive tendencies. Models that, as Dow (1996) proposed and Chick (2004) applied to Keynes's *General Theory*, must be as *open* as the economic systems that they seek to portray. They should not aim to include all the necessary variables, because the researcher knows that this is impossible. More than that: because it is dangerous and arrogant to reduce social reality to closed models.

I call the alternative to neoclassical economics that I am presenting "Keynesian-structuralist economics." I do not call it just "Keynesian" or "Post Keynesian," because in Keynes there is no theory of economic development; I call it "structuralist" because economic development involves a process of structural change starting with the capitalist revolution of each country, and because capitalist societies are best understood in terms of their structure as formed by three interrelated and permanently changing instances: the economic, the institutional, and the ideological.<sup>4</sup> The relation between these three instances is not just that of cause and effect, but is a dialectical relation that must be viewed historically: in the early periods of economic development, the economic instance tends to prevail over the other two, but, insofar as the basic institution of capitalist societies—the modern state—is formed, the role of ideas and of institutions increases.

## Conclusion

Summing up, competent heterodox economists—economists who are open minded and reject all orthodoxies—are able once again to belong to the mainstream. When I say that, most of my fellow economists express doubts. The neoclassical core would be ineradicable insofar as the economic departments in the major universities identify with it. But Keynesian economics and structuralist development economics were mainstream between the 1950s and the 1970s. Why not again? Why can't a modest and pragmatic heterodoxy replace an arrogant and misleading orthodoxy? The 2008 crash and the long-term recession that followed it represent a major opportunity for Keynesian-structuralist economics. At the peak of the crisis there was a general return to Keynes and Minsky on the part of policymakers and analysts. Today there is a consensus to

<sup>4</sup> Structuralist development economics is understood to include the development economics that in the 1940s and 1950s put together, in a nonorthodox way, classical economics, Marxian economics, institutional economics, Schumpeterian economics, and Keynesian macroeconomics. Among the main contributors to it, I cite Rosenstein-Rodan, Arthur Lewis, Gunnar Myrdal, Ragnar Nurkse, Raúl Prebisch, Hans Singer, Celso Furtado, Michal Kalecki, and Albert Hirschman.

the effect that the crisis was not as deep as it could have been because Keynesian policies were adopted.

Mainstream economics is dominant because it prevails in academia as well as in policymaking. A new mainstream economics must make sense to citizens—not only to economists but also to businessmen, politicians, intellectuals, labor leaders, journalists, and the middle class. When heterodox economists are able to build a modest but realistic model of the economy under analysis and to propose a set of policies that are consistent and feasible, they will show themselves to be more effective and more serious than the corresponding orthodox model and policies.

Of the two bastions of the mainstream—the major economics departments and the policymaking community—the first to be conquered is the societal or the policymaking one. Today civil society—society politically oriented—is much more open to alternative economic theories and policies than is the university. Essentially this is because in all rich countries and in most middle-income countries civil society is open and democratic. The same does not apply to the economic departments in the major universities in these countries. They are self-referential, closed to the rest of society. Insofar as neoclassical economics is a mathematical theory, it is supposed to be uniquely and absolutely correct. This makes most of its adherents intolerant and intrinsically authoritarian, and explains why in these self-referential departments heterodox thinking, dissent, was banned. Sooner or later this bastion will also fall, or will be changed from within, but this will happen only after the neoclassical core, as I define it here, is deflated and discarded.

When this change eventually takes place, graduate courses in economics will not limit themselves to the presentation of mathematical models and econometrics. Econometrics will remain central, but, besides that, postgraduate economists will discuss schools of economic thought and the debates that are at the frontier of economic research, and will widely adopt the case method. When you do not have a precise science, the case method is a wonderful method for understanding economic systems, for teaching and thinking about economics.

Heterodox economics may again become dominant, but not all heterodox economists. Just as there are a lot of incompetent orthodox economists, there are also many incompetent heterodox economists. Besides, among competent heterodox economists a reasonable number were born to criticize, not to build models and develop policies. For them it is difficult if not impossible to be part of the mainstream—they are against all mainstreams.

While most neoclassical economists are right wing, often heterodox economists are to some extent left wing. The more left wing they are,



the greater will be the difficulty that they face in saying things that make sense to the political and the business elites on which the application of the policies that they propose will depend. Thirty years ago, Michel Rocard, the outstanding politician of the French Socialist Party, declared: the challenge that socialists face is to be more competent in running capitalism than capitalists. To achieve that it is necessary to make compromises; in Max Weber's terms, it is necessary to adopt the ethics of responsibility instead of the ethics of conviction. This will not be necessary in relation to theory, but it will be in relation to policymaking. The new mainstream should be committed to full employment, growth with price and financial stability, and reduction of economic inequality. But these goals will have to be pursued with prudence and with fiscal and exchange rate responsibility.

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