

# Teaching relevant microeconomics after the global financial crisis\*

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## Abstract

There are reasons to believe that the failure of economics to prevent and also to predict the global financial crisis of 2008 creates favorable conditions for the reform and revitalization of the field towards a discipline more oriented to real-world behavior of economic actors. Mainstream microeconomic theory, as it is actually professed in undergraduate and graduate classrooms, continues to promote technique rather than substance, exaggerating the role of abstract modelling. To elevate the substance in microeconomic analysis three possible sources are suggested here: history, psychology and sociology. This is questioning both the limits of methodological individualism as well as the legitimacy of separating economics from other social disciplines. Teaching real-world microeconomic theory turns out to be a struggle against disciplinary isolation inside economic departments.

**JEL classification** A12, A22, B50, D01, Z10

**Keywords** microeconomic theory, methodology, economic history, behavioral science, economic sociology

## The financial crisis and mainstream economic theory

Mainstream microeconomic theory cannot comprehend economic crises because it starts with the assumption that rational individuals usually (if not always) take the right decisions that maximize their individual aims (utilities and profits) and that at the end of the day, right and wrong decisions balance each other to produce a generalized equilibrium between supply and demand. So, whenever there is a global disequilibrium in the markets, a neoclassical economist always puts the blame on human interference – public or private – that has somehow impeded the clearing processes of the market. In the neoclassical narrative, a crisis is either the fault of the government and its regulating activities, or the monopolistic behavior of some influent agents who have confused the competitive game of the market with the game of monopoly: yes, you will maximize your profits, though you don't eliminate all the other competitors, for the game would be instantly over.

A fundamental reason for the above is the deeply rooted belief in the natural stability of the market economy as a result of the non-coordinated behavior of rational agents. Nothing describes better this quasi-metaphysical belief than the abuse of Adam Smith's celebrated metaphor, as exemplified in contemporary textbooks:

“Households and firms interacting in markets act as if they are guided by an ‘invisible hand’ that leads them to desirable market outcomes. One of our goals in this book is to understand how this invisible hand works its magic. As you study economics, you will learn that prices are the instrument with which *the invisible hand* directs economic activity” (Mankiw, 2012, 11, emphasis added).

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\* An earlier draft of this paper was presented in the *1st International Conference in Contemporary Social Sciences*, Crete 10-12/6/2016. I am grateful to the participants of the session for their critical remarks.

What's more, this belief has also permeated the heart (or the brain) of central policy makers, such as Alan Greenspan, the former chairman of the Federal Reserve, who declared (in October 2008, before a Congress Commission) that he had "made a mistake in presuming that the self-interest of organizations, specifically banks would protect shareholders and equity in the firms".

The unsound vision of internal stability of the market is further self-protected by numerous assumptions and axioms that knowingly defy the reality, to serve the theoretical requirements of the general equilibrium model.<sup>1</sup> It is thus assumed that both consumers and producers act in an environment of perfect information of the present and future conditions and decide instantaneously under full certainty (Stiglitz, 1994, 29). By the same token, perfect information deactivates the role of money as a precautionary means for future needs and as a means for speculation, depicting a false image of an automatic adjustment (Mirowski, 2010, 428). Except that in the real economy, decisions are taken by considering the existing sum of money (in circulating or fixed capital) and above all by calculating the eventual risk of every placement in the short or long run. In other words, not only is money an endogenous element of the markets – as we know at least since Keynes (1936) – but it is also a fundamental cause of the instability and cyclical fluctuation of the economic system (Minsky, 1980). A crisis appears when investors massively change their behavior and start selling their accumulated assets, thus creating a sudden increase in demand for liquidity. As the financial crisis of 2008 has demonstrated, markets are far from being efficient, in the sense that transactions are rarely made in prices that correspond to the exact value of the good or service that is exchanged (Tsoulfidis, 2010, 330).

This fact obliges economists to reconsider the whole idea of the theoretical representation of the economic system as a closed and delimited world. On the contrary, the starting point should be that of an open and constantly evolving world, which is inhabited by interdependent and interacting individuals (Chick & Dow, 2001, 719; Kirman, 2009). Complexity of economic phenomena is not a situation to be studied during the final semesters of economic studies, but should be introduced to students in the very first lectures of ECON 101. Constructing formal models based on the hypothesis of fully independent and non-interacting actors, is just a waste of time and energy. Keynes marvelously described the limits of this kind of formalism in 1936:

"It is a great fault of pseudo-mathematical methods of formalizing a system of economic analysis [...] that they expressly assume strict independence between the factors involved and lose all their cogency and authority if this hypothesis is disallowed; [...] Too large a proportion of recent 'mathematical' economics are merely concoctions, as imprecise as the initial assumptions they rest on, which allow the author to lose sight of the complexities and interdependencies of the real world in a maze of pretentious and unhelpful symbols" (Keynes, 1936, 297-8).

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<sup>1</sup> To assure the possibility of an aggregate and integrable demand function, additional restrictions were imposed upon individual ordinal ranking of preferences: completeness, transitivity, continuity and convexity. These axiomatic restrictions guarantee the existence of a "complete preordering of preferences" for every individual which are only necessary and not sufficient conditions for the existence of a general economic equilibrium, still not its uniqueness, nor its stability. Israel & Ingrao (1990) made an excellent historical exegesis of the development of the general equilibrium model.

What are the lessons to be taught from the above as to the education of young economists? We will focus next upon the changes to be made in teaching undergraduate microeconomics, after first examining the perception of the problem by its teachers and students.

### **Reactions against autistic economic theory**

Reactions to the way the theory of prices is professed in higher education institutions long preceded the recent global crisis. Back in 1991, an official investigation in American colleges and universities has pointed out the excessive practice of mathematical techniques in economic departments (see *Report of the Commission on Graduate Education in Economics*, 1991). In the conclusion, a universal concern was openly expressed: “The Commission’s fear is that graduate programs may be turning out a generation with too many idiots savants, skilled in technique but innocent of real economic issues” (Krueger, 1991, 1044-5). This situation is the consequence of a long-standing tendency of homogenization in the economic curricula of American universities from interwar pluralism to post-war neoclassicism. The tradition of the Institutionalist School (Veblen, Hamilton, Ayres, Commons, Mitchell), as well as the tradition of economic history in Harvard (Schumpeter, Gershenkron, Kuznets) and other eclectic economists (J.M. Clark and F. Knight), was replaced by a monolithic way of thinking that changed the “professional ethos of economics” (Barber, 1997; Morgan and Rutherford, 1998, 1-25).

In Europe, with many national traditions of economic thought the tendency of homogenization in economics is less evident.<sup>2</sup> Nonetheless, in Europe there was also a bottom-up reaction movement of students in France in June 2000, known as *Autisme-Economie*, which was immediately supported by many professors (more than 145 of them) and which initiated a public debate in the columns of the daily French newspaper *Le Monde*. Soon, this movement against excessive formalization and the lack of pluralism in economic departments, involved many globally known economists such as Amartya Sen, Robert Solow, Olivier Blanchard, James Galbraith, etc. The movement also spread to many campuses, such as Cambridge (UK), Kansas and Harvard, and gave birth to the digital *Post-Autistic Newsletter* in September 2000, (see Fullbrook 2003, 3-17) which became the *Real-World Economics Review*, now in its 82th issue and with 26,500 subscribers.

Based on that reaction, it was maintained that standard microeconomic theory, i.e. the general equilibrium model should be simply abandoned (Guerrien, Keen, Dorman, Halevi in Guerrien et al., 2002; Keen, 2009). To summarize, these critics insist upon the lack of empirical and theoretical relevance of standard microeconomics and its use of absurd assumptions. Less negative critics in the same *Review* believe that microeconomic theory is useless unless it captures “the complexity of interaction in the economies” (Mayhew); that some central issues, such as the notion of choice and the supply and demand curves, have some pedagogical value in so far as they are incorporated into a teaching program that serves the general goal of promoting well-being (Nelson). More constructive critics believe that “basic economic reasoning” contained in microeconomic theory is truly important and

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<sup>2</sup> In Coats ed. (2000) economists from ten western European countries have studied the growth of higher economic education and postgraduate training, the professionalization of the discipline, the evolution of research groups and institutes, the homogenization of academic rules and norms of scientific publication, as well as the role of the economist’s profession in the post-war economic and social development of Europe. One of the main conclusions was that despite the undeniable trend towards Americanization, differences on a national level are still present in all European countries.

worthy to be taught to students (Caldwell); also that “the core ideas of neoclassical ideas should not be excluded from the curriculum but placed alongside alternatives”, at least unless a more “adequate conceptualization of the human agency and decision making” appears (Hodgson); and finally that microeconomic theory can be “properly taught” with many applied economic problems as case-studies, instead of the usual formalistic tools of general equilibrium economics (McCloskey).

### **Teaching relevant microeconomics**

Taking into consideration the above discussion, let us consider what we believe is worth keeping in standard microeconomics and how we should teach it. To start with, a significant re-orientation should be made in the subject matter of teaching. Here are some suggestions:

- 1) Give emphasis to economic substance over mathematical technique as many scholars have suggested (McCloskey, 2000, 218; Hodgson, 2009; Krugman, 2009). That means giving priority to economic concepts instead of sacrificing realism for the sake of the technical apparatus (Fine & Milonakis, 2009, 135). Theory and teaching should be appropriate to the relevant causal factors at work. An outstanding example of the doctrine of excessive commitment to analytical rigor by all means, is the representation of completely rational individuals who are gifted with perfect foresight and yet unable to do anything before the imaginary auctioneer cries-out equilibrium prices (see more in Zouboulakis, 2014, 51-54). The time has come to abandon the theory of price-takers and profess the idea of price-making agents, as in classical political economy.
- 2) Recognize that individuals have limited cognitive and computational capacities in pursuing their economic interests (as Henry Simon has showed) and, additionally, that economic decisions are often determined by “animal spirits – a spontaneous urge to action rather than inaction” (Keynes, 1936, 161-2; Akerlof & Shiller, 2009, 5). The recognition of these facts will help the student to understand from the beginning of her studies that markets are endogenously instable, regardless of the policy program. Keynes was right when he said: “We are merely reminding ourselves that human decisions affecting the future, whether personal or political, or economic, cannot depend on strict mathematical expectation, since the basis for making such calculations does not exist” (1936, 162-3).
- 3) Admit, consequently, that though the aim of the economist should be to grasp the world in a quantitative way, not everything is quantifiable and measurable in economic phenomena. Usually in economic modeling, the non-measurable is simply ignored (Mayer, 1996). Thus, some culturally determined behaviors that greatly affect entrepreneurship, saving, investment and even consumption, are not taken into account. Instead as Akerlof and Shiller concluded their best-seller book: “Evidence abounds for the animal spirits discussed in the first five chapters: confidence, fairness, corruption, money illusion, and stories. These are real motivations for real people” (2009, 174). Confidence, fairness, corruption and stories – i.e. widespread social representations of an era – are culturally determined social norms. Relevant literature on the influence of norms, custom and habits goes back to Nelson and Winter (1982) and has grown

significantly in the last 20 years to a degree that it is impossible to ignore when dealing with human behavior.<sup>3</sup>

- 4) We shall introduce students to some of the economic concepts relevant to microeconomics which have survived 240 years of history of economic thought. These include opportunity, cost, scarcity, productive factors, production possibility surface, division of labor and productivity, marginal increase, diminishing returns, increasing returns to scale, the law of demand, price and income elasticities, variable and fixed costs, the functions of money, money illusion, profit, interest of capital, rate of wages, competition and market power, concentration of capital, product differentiation, price discrimination, etc. The historical persistence and explanatory power of these theoretical concepts reinforces the scientificity of economic discourse in the minds of young students more than a solid logical construction of mathematical equations describing an imaginary world.
- 5) Analyze thoroughly only the chapters of mainstream theory that focus on the strategic interdependence between economic actors, such as duopoly, monopolistic competition and interactive game theory. Perfect competition should be only mentioned as an exceptional market and merely in order to introduce the idea of large competition prevailing in some international commodity trade markets, the fish market and the stock-market. Emphasis should be put on the applied fields of microeconomics in order to reveal the interaction between hard-core economic concepts and the institutional structures of the real economy. In the fields of industrial economics, agricultural and labor economics there are plenty of “good quality data that can be directly related to variables that appear in the corresponding economic theories” (Backhouse, 1997, 215).
- 6) A significant part of the course should be devoted to describing theoretically and concretely market failures using real examples of externalities in production and consumption, of problems of asymmetric information, adverse selection, moral hazard and inefficient allocation of property rights.

All the above are not sufficient by themselves to construct a relevant course in undergraduate microeconomics. As Joan Robinson said,

“Micro questions – concerning the relative prices of commodities and the behavior of individuals, firms, and households – cannot be discussed in the air without any reference to the structure of the economy in which they exist, and to the processes of cyclical and secular change” (Robinson, 1977, 1320).

Therefore, to elevate the substance of microeconomic analysis we need to strengthen its content with material from other social disciplines.

### **With a little help from my friends**

We fully subscribe to Hodgson’s advice that “the modern university may require a Humboldtian reform” (in Fullbrook, 2003, 145). Until this is done, departments of economics

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<sup>3</sup> Beyond Nelson & Winter (1982), more recent contributions include Hodgson (1997; 2003). Schlicht (1998) and Hardin (2002). The idea of customary rule following behavior has a much longer history and was very much present in Mill and Marshall’s Economic Theory. Cf. Zouboulakis (2015).

can organize their curriculum so as to make it more relevant to the real economy. The first thing to do is to reinforce the place of both economic history and the history of economic thought. As to the former, the recently deceased economic historian and “Nobel Prize” winner in economics wrote:

“Economic history is a depressing tale of miscalculation leading to famine, starvation, defeat in warfare, death, economic stagnation and decline, and indeed the disappearance of entire civilizations. And even the most casual inspection of today’s news suggests that this tale is not a purely a historical phenomenon” (North, 2005, 7).

Thus, a pedagogically fruitful way to deal with the crisis of 2008 is to compare it with the depressions of 1873-1896 and 1929-1939. Students will then have the opportunity to realize all the dimensions of the actual crisis by knowing how the system has responded and changed in many aspects to overcome the previous crises. I mean the changes in policy priorities, in industrial organization, in money and banking regulation, in labor protection and of course in its theoretical orientation. Other episodes – such as the “Tulip Mania” and the “South-Sea Bubble” – also possess an analog pedagogical value. Needless to say, the details of the so-called “industrial revolution” are of huge importance to understanding the fundamental genetic characteristics of the economic system we live in.

As to the latter, more emphasis should be put on the history of economic thought – a sub-discipline that offers an absolute advantage in discovering new ideas, as many innovative economists have recognized. Paul Krugman (1996, 140) concluded that “when if one tries to reinvent a field without knowing what came before, one is too likely simply to reinvent old ideas, most them bad”. Geoffrey Harcourt also wrote that “often the same issues arise, and then it will be found that the greats of the past had something of lasting value to say about them” (in Fullbrook, 2003, 70). Even more categorically, Ronald Coase (2002) said

“It is a striking [...] feature of economics that it has such a static character. It is still the subject that Adam Smith created. It has the same shape, the same set of problems. Now of course we’ve made improvements, we’ve corrected some errors, we’ve tightened the argument, but one could still give a course based on Adam Smith”.

As Arjo Klamer and David Colander (1990) have suggested, one of the main reasons that only a very small minority of young economists has a “thorough knowledge of the economy” comes from their lack of understanding of the past of economic thought and economic history.

Furthermore, teaching the evolution of economic thought is an excellent means to promote the idea of scientific controversy and theoretical pluralism within our discipline. Economics, and the social sciences in general, are constantly in a state of internal division in many rival schools of thought with such great differences that one may certainly speak about competing “Scientific Research Programs” (SRP) in Lakatos’ sense.<sup>4</sup> Differences and quarrels are

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<sup>4</sup> The “Methodology of Scientific Research Programs” by Imre Lakatos (1970) received great attention from 1974 to the late 1990s because the view of competition among different scientific programs corresponds greatly to what is really happening during the historical development of economics. The study of how different “programs” interact and compete with one another looks like a valuable starting point for the historical analysis of major “problem-shift” episodes, like the Marginalist or the Keynesian

natural in every scientific field. Yet, a student in physics, chemistry or biology is always able to get the state of the art by reading the last edition of any best-seller textbook. It is quite the reverse in the social sciences where differences exist in textbooks not only on the presentation of the major themes and the focus upon them, but also on the methods and techniques, the definition of major concepts, even the demarcation of the domain and the main purposes of social disciplines.

The simple recognition of this *de facto* pluralistic situation should lead the teacher of economics to deal with equal respect the competing SRPs and theories, to the best of his knowledge. Raveaud (in Fullbrook, 2003, 67) suggested “to teach through controversies”, meaning to present the students with the competing views on recurring economic problems. The history of economic thought is full of controversies that are still relevant. Raveaud quotes the example of the Vining-Koopmans controversy in the late 1940s (more widely known as the “measurement without theory controversy”) about the use of statistical data without a proper theory of economic behavior. Inductive inferences based on data collection are only good for establishing empirical relationships unreliable for prediction or policy purposes (Cf. Boumans and Davis, 2010, 38-41). An example more significant to microeconomics is the “full-cost controversy”. Initially, Robert Hall and Charles Hitch in 1939-40 contested empirically the profit maximization hypothesis, claiming that entrepreneurs set their prices by comparing – not the marginal cost to the marginal revenue – but simply matching up to a rough notion of total cost the market price. Richard Lester, seven years later, also contested the empirical relevance of the marginalist principle, initiating a huge debate in the *American Economic Review* from 1946 to 1953, involving many economists such as Machlup, Stigler, Eiteman, Apel, Bishop, R.A. Gordon, Haines, Bronfenbrenner, Reynolds, Papandreou, Kaplan, Ritter and co.<sup>5</sup> Even more instructive is the “Friedman-Samuelson-Machlup debate” in the early 1960s, also known as the “positivist-descriptivist controversy” about the empirical status of the maximization hypothesis. As it is known, the controversy was unfortunately concluded with the prevalence of Friedman and his thesis that “theories are good for predictions only”. In that sense, it is useless to criticize the unrealistic nature of economic assumptions like economic rationality, since the aim of any assumption is only to provide the basis for successful predictions. This is the meaning of his famous F-twist: “the more significant the theory, the more unrealistic the assumptions”. Finally, we can mention the Galbraith-Becker-Stigler debate in the late 1960s on the role and functions of advertising in shaping consumers’ preferences (Hodgson, 2003, 160).

A second goal is to enrich the subject of microeconomics with the findings of psychology and behavioral science in particular. Psychologists, like Daniel Kahneman and Amos Tversky, put emphasis on experimentally observed behaviour using social, cognitive and emotional factors in understanding the economic decisions of individuals and organizations when performing economic functions. Kahneman and Tversky (1979) provided experimental evidence showing that people prefer lower, but more certain gains, rather than greater and more uncertain ones. They have also demonstrated that individuals are treating gains and losses asymmetrically, meaning that they do not assign the same value to expected utility and disutility. Series of experiments were put forward aiming at exploring the heuristic the individuals follow and the biases to which they are prone in decision making under uncertainty. Results from laboratory experiments have shown that individuals tend to be error prone and possibly irrational, suffering from “mindless behavior”, “insensitivity to sample size”, “base rate neglect”,

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“revolutions”. For a concise evaluation of SRP Methodology see Blaug (1980: 31-6), Hausman (1992, 192 ff.), Backhouse (1997, 88-95), Boumans and Davis (2010, 108-114).

<sup>5</sup> See Hausman (1992, 158-162), Tsoulfidis (2010, 241-2) and Zouboulakis (2014, 63-67).

“misconceptions of chance”, “cognitive illusions”, “confirmatory bias”, “belief perseverance”, “anchoring” etc. (Rabin, 1998, 24-30). Other experiments confirmed the fact that decision making is shaped by “framing effects”: the semantic description of possible outcomes affects greatly the individual’s choice; decision makers are inclined to accept passively the formulation of different choices and are particularly influenced by the default option.<sup>6</sup> Therefore, the observation of consumer’s and producer’s behavior under different market structures gave birth to a more realistic representation of rational economic behavior. These massive empirical findings cannot be ignored and should be incorporated in the textbooks of microeconomics, even at the expense of a fictional generality.

The third and last goal is to enhance empirical relevance in teaching microeconomics, is to adopt a socially broader view of economic agency. Mainstream economic theory adopts the view that individuals live alone in a pre-social state of society and act in isolation with other human beings (Arnsperger & Varoufakis, 2006). Major economic issues – like externalities, money illusion and trust – are thus left aside although they do affect greatly economic transactions. The mainstream view, for theoretical, technical or ideological reasons, denies in fact the very essence of interpersonal exchanges between interacting individuals. As Kenneth Arrow (1994, 2) has suggested, to recognize the action of the social context upon individual behavior is to identify “the ineradicable social element in the economy”. Or even better said, “Rational deliberation is not possible except through interaction with the fabric of social institutions” (Hodgson, 2003, 163). Consequently, sociologists such as Mark Granovetter, Neil Smelser, Richard Swedberg, Carlo Trigilia, Viviana Zelizer and many others have produced over the last 20 years, a significant theoretical and empirical work that deepens our knowledge about the way economic transactions are really made. Findings about the weight of non-material motives in economic transactions; the significance of the system of rotating credit associations in developing countries; the role of informal arrangements and cooperation between industrial firms; the meaning of credit and commercial circuits among family members and other personal connections. All these findings demonstrate the narrowness of mainstream analysis which keeps outside the study of economic phenomena significant elements of social structure that really shape the efficiency of economic outcomes. As Ronald Coase (2002) said, “economists should enlist the support of lawyers, sociologists, anthropologists, and others in our work in order to understand why transaction costs are what they actually are. It’s the opposite of economic imperialism.”

### **On the usefulness of economic theory**

An outstanding neoclassical microeconomist, Hal Varian, asked the emphatic question of “What use is economic theory?” To answer the question, he started by recognizing the obvious: “Economics is a policy science and, as such, the contribution of economic theory to economics should be measured on how well economic theory contributes to the understanding and conduct of economic policy” (1997, 109). But this acknowledgement should have led Varian in the opposite direction to the one he took. Instead, he claimed that although “it offers a useful insight in explaining an economic phenomenon” (ib., 115), “no theory in Economics is ever exactly true” (sic), since – as Friedman said 44 years ago – it focuses unilaterally onto one dimension of economic phenomena. Varian feels comfortable in

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<sup>6</sup> “Framing effects” are closely related to the phenomenon of “preference reversals” discovered by Lichtenstein and Slovic in 1971. A detailed review of the relevant literature is made in Hausman (1992, 227ff.).

admitting that “any method is better than none” (ib., 116), even if it leads to error.<sup>7</sup> What a rigorous theorist should do instead is to promote only theories based on assumptions that sufficiently correspond to the operating frame of the real economy.

A commonly held view is that the Great Depression established Keynesian macroeconomics. However, the specialists know that it also greatly facilitated the process of mathematical formalization. A plausible explanation refers to the demand of the labor market for economists: business and research institutions wanted more technically skilled economists instead of broadly educated ones. The same demand for technical expertise was explicit in organizations such as the IMF, the OECD and, even more, the Rand Corporation. Thus,

“Economics suffered in a peculiar way because it had established a type and degree of formalism that allowed research output to be assessed principally in terms of mathematical interest and elegance. Economists were judged and became employable for their aptitudes for statistical analysis or predictive models” (Hodgson, 2009, 1216).

The homogenization of economic knowledge seen above, was obtained through the elevation of formal technique, as opposed to its substance. As Keynes wrote to Roy Harrod in 1938: “In economics ... to convert a model into a quantitative formula is to destroy its usefulness as an instrument of thought” (quoted in Hodgson 2013, 11). In that sense, the solution to the crisis in economic education coincides with the search for more useful economics.

We have seen already that this call goes back to 1991 and the COGEE Report in the US. Colander et al. (2004) have reported that mainstream economics changed during these last two decades before the crisis. Recent empirical surveys among graduate students of economics in seven major American universities (Colander, 2005, 181), show a hopeful change in their perception of the importance of knowledge of the real world economy, as against formal modeling, although they continue to complain about the lack of policy relevance just as they have done 20 years before (Klamer and Colander, 1990; Krueger et al., 1991). As argued here, and judging from the lack of apprehension of the biggest economic destabilization since 1929, apparently mainstream economics hasn’t changed enough. Even if there are actually more “elite mainstream economists working at the edge”<sup>8</sup> and many of their graduate students perceive their differences, it is excessively unsafe to announce the arrival of a “Kuhnian shift” by this time; the suggestion that we are living the moment of the gradual transition time lag from the old conception of the market economy as a self-equilibrating mechanism to a new one “centered on dynamics, recursive methods and complexity theory” is too good to be true. Core microeconomic theory today, continues to suffer from the 19<sup>th</sup> century “Physics’ envy” and shares the same “icon of scientificity” since Jevons and Walras (Mirowski, 1989).

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<sup>7</sup> Actually Varian confused Roger Bacon (1214-1292) with Francis Bacon (1561-1626) and distorted the meaning of the latter’s motto “truth emerges more readily from error than from confusion”, writing “more truth arises through error than confusion”. A fundamental rule of logical inference – called “modus Tollens” - says that “if p implies q and q is a false proposition, then p is not a true proposition”. On the contrary it is invalid to deny the antecedent, that is to say “if p implies q and p is false, then, q is false”. Truth “arises” only from the first kind, although confusion helps not the truth to emerge, as Francis B. meant.

<sup>8</sup> Colander et al. (2004) made the distinction between orthodox and mainstream economists, in order to identify those neoclassical economists who are critical of the standard theory and work “at the edges” of orthodoxy. In their survey they include in that category Paul Samuelson, Kenneth Arrow, Robert Solow, Thomas Schelling, Amartya Sen, Joseph Stiglitz, Chris Sims, Michael Woodford, George Akerlof, Richard Thaler, Anne Krueger, and Jagdish Bhagwati (2004, 493).

The multiplication of papers, books and conferences around the world are hopeful signs of a change that will remain unfinished as long as it is not disseminated through the undergraduate economic education. Our suggestion here is to disseminate the idea for a need for educational reform in undergraduate programs inside the department of economics. In Greece for example, severely touched by the crisis, after seven continuous years of depression and with an accumulated loss of GDP of roughly -25%, what are the changes already made in our undergraduate curricula? Looking at the outlines of the courses taught at the 11 undergraduate economics departments I am afraid, there have been very little changes.<sup>9</sup>

I end with an example of a good textbook. Joan Robinson and John Eatwell (1973) have more than 40 years ago suggested an alternative textbook that is very close to what I have in mind as relevant microeconomics. It offers sufficient space for the history of our discipline, it analyzes succinctly the factors of production, it makes a realistic description of the market mechanism and pricing of goods and services and introduces the student smoothly to a solid theory of capital and profit, not without reconsidering the fake division between micro and macroeconomic theory. There are of course many other fine works which are serving the same purpose, without the obsolete chapters on socialist planning. I have in mind *Understanding Microeconomics* by Robert Heilbroner and Lester Thurow (1984), and *Understanding Capitalism* by Samuel Bowles, Robert Edwards and Frank Roosevelt (2005).<sup>10</sup> They all ask the right questions: what is production and consumption for? By whom? For whom?

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<sup>9</sup> By chronological order of their "date of birth" Greece has the following economic departments at the universities of Athens, Thessaloniki, Economic, Macedonia, Piraeus, Patras, Crete, Thessaly, Ioannina, Peloponnese, and Thrace. The first three were "born" before the WWII, the next two in the late 1950s, Patras and Crete in the late 1980s, the next two in 1999 and the last two after 2002.

<sup>10</sup> Fred Lee (2005) makes another proposal of what he calls "Heterodox Microeconomics" with a lot of suggestions for further reading.

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SUGGESTED CITATION:

Michel S. Zouboulakis, "Teaching relevant microeconomics after the global financial crisis", *real-world economics review*, issue no. 82, 13 December 2017, pp. 47-59, <http://www.paecon.net/PAERReview/issue82/Zouboulakis82.pdf>

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