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Out of Robotic Constructs and into Realistic Science: A Critique of Conventional Economic Wisdom

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Abstract: The international financial crisis brought the world's economy down to its knees and placed economics as a discipline in crisis, the depth of which may be paralleled only by the aftermath of the Great Depression. Consequently, the debate about the current state of economics has greatly re-intensified since at least 2008, and ranged in scope from the basics of what we traditionally teach in undergraduate and graduate economics courses to the very core of economic theory and policy choices. A review of the literature would in our judgment reveal that while the debate is warranted and long overdue, it has revolved around reforming conventional economic wisdom. To reform the latter is to maybe tinker with one thing here, possibly change another there, or even plausibly introduce new elements or considerations into what already exists. In this paper, we argue that to limit our efforts to reforming conventional wisdom, keeping in mind the pains we undergo in the process, is missing out on the historic opportunity that has opened up to truly redirect economics toward the right track of realism. This redirection will require in the least reflection on the epistemology of economics, thought about the philosophy that underlies economic theory, and consideration of an interdisciplinary approach that may lead to incorporating advances in related disciplines. It is only after we restudy these fundamentals that we must reexamine the roles of markets and mathematics in economic analysis. This paper is predominantly theoretical. It relies on reexamination and analysis of existing theories, principles and fundamentals. What has been taken for granted in economic analysis becomes subject to question in this paper.

Key words: economics; macroeconomics; economic theory; economic policy; international financial crisis; international economic crisis; economic science

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1. Introduction

Economics is in crisis. Contemporary conventional economic wisdom did not see the international financial crisis coming. Apart from issuing a warning here or sounding the alarm there, no economists had forecast the crisis, as was exclaimed by Queen Elizabeth during a visit to the London School of Economics in 2008.

This great and grave failure led former BIS chief William White (2009) to title a piece written for IMF's Finance and Development in December of 2009, "Modern Macroeconomics is on the Wrong Track." For his part, MIT's economic historian Peter Temin (2011) opened an interview with The Straddler saying, "In my opinion,

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macroeconomics has lost its way." Columbia's Joseph Stiglitz (2010) was not as diplomatic when he wrote, "Economics is in a sorry state of affairs." Meanwhile, Harvard's Larry Summers (2011) summed up the observation, the problem and the solution all in one sentence as he stated, "Even though economics knows a fair amount, it has forgotten a fair amount that is relevant and it has been distracted by an enormous amount."

Yes, economics is in crisis and conventional economic wisdom has been subject to question, debate and discussion, extensively since the outbreak of the financial crisis back in 2007, and alternatively in circles deemed marginal to the mainstream since long before that. One must note that it is rare for economists to agree on something. Yet, they do seem to converge toward the notion that something must be done about economics as we know it. Departing from this notion, various economists have proposed critiques of various aspects, elements and dimensions of conventional economic wisdom ranging from the purely theoretical and academic to the entirely empirical and applied. Yet, despite the severity of the financial crisis and the gravity of the failure to predict it, most mainstream economists seem to remain captive of the conventional wisdom box of classical notions and market superiority. In fact, US Fed Chairman Ben Bernanke (2010) goes so far to say, "Although economists have much to learn from this crisis, I think that calls for a radical reworking of the field go too far." We can't disagree more and that is not because economics failed to predict the crisis as many seem to hold in outrage. This presumption of precise prediction is a devil we economists have brought to ourselves by culturing ourselves to strive for it and others to expect it from us as we have historically struggled in vain to be become natural "scientists", we rather disagree because as Caballero (2010) states so eloquently, "The current core of macroeconomics …. Has become so mesmerized with its own internal logic that it has began to confuse the precision it has achieved about its own world with the precision that it has about the real one."

In this paper, we argue that the current debate about the state of economics ought to be seen as a historic opportunity to take this field out of its robotic constructs and redirect it toward dealing with the real world as it is and not as we like to see it from our "scientific" ivory towers of physics, mathematics and statistics. This will require in the least reflection on the epistemology of economics, thought about the philosophy that underlies economic theory, and consideration of an interdisciplinary approach that may lead to incorporating advances in related disciplines. It is only after we restudy these fundamentals that we must reexamine the role of markets in economic analysis. We propose our argument in this regard in the context of a positive and constructive approach that aims to defend economics, for we cannot imagine our world without the benefits of economic analysis.

In the first section of the paper, we present a panoramic picture of conventional economic wisdom as it has evolved over time and events. Meanwhile, the second section is devoted to a critique of economics in theory and in practice. Finally, we propose some thoughts about reframing the issues around which the debate should revolve in order to be able to lay claim in the future that we did learn something from the international financial crisis in the third section.

2. Robotic Constructs

Socrates once said I know that I know nothing. Although western civilization has been built upon early Greek and Latin advancements in science, philosophy and humanities, Socrates' notion of knowledge seemed to have been part of the relevant amount we have ignored, to borrow Summers' terms. In modern economics, Socrates' notion has become we know a whole lot, and what we don't know we can suppose away or precisely predict.

The whole lot we know is the earnest product of what we have discovered in terms of laws that govern economic agents' behaviors, using of course scientific methods inspired by or derived from or mirroring physics and the laws of thermodynamics (Mirowski, 1989). As such, economics becomes a science subject to the laws of nature which are by definition universal and consequently applicable regardless of time and space particularities. Accordingly, we built a body of economic normality any violation of which is labeled distortion and deemed abnormal because it contradicts with the laws of nature (Temin, 2011).

Economics does not claim to know everything. But it does claim that equilibrium exists and markets are efficient enough to factor in the effects of known and unknown events. At one point in time or another, call it short term, intermediate future, long run, in the end or whatever else may make you feel comfortable, all events will be discounted and equilibrium will hold. Consequently and aside from shocks, non routine change does not matter so it can be assumed away (Frydman and Goldberg, 2010). It is as if motion, emotion and interaction do not matter. Or, they are programmed away by an assumption of rationality deep rooted in another assumption of utilitarian ethics. Notice here how three critical assumptions are linked together to form the core of conventional economic wisdom, mind you not that each assumption has been controversial and debatable.

In the context of this beautiful linear alignment of economic agents' behaviors among the past, the present and the future, economics must be able to predict. For if it does not predict, it would fail the test of being a natural science. This undue pressure to predict puts economists face to face with the challenges of handling risk and uncertainty. It is exactly here where economists get entangled in intellectual and philosophical discussions of such concepts as known unknowns, unknown unknowns, routine change, non routine change, probability distributions etc.

2.1 Definitions: Economics and the Homo Economicus

For many, the conventional construct of economic wisdom starts from how economists define their discipline. And for long, we have all managed to drive our own versions of the same basic classical definition stated so articulately by Samuelson and Nordhaus in their series of editions which has come to become the bible of teaching modern economics.

In the seventeenth edition, economics is defined as "the study of how societies use scarce resources to produce valuable commodities and distribute them among different people." This definition is a step up of higher specificity in the sense that it places the emphasis on the production and distribution of valuable commodities. Another definition of more generality is that of Robbins (1932, 1935) who says, "Economics is the science that studies human behavior in relation to ends and scarce resources having alternative uses." Obviously, human behavior in relation to ends is broader than the notion of production and distribution. It pertains to all finalized actions no matter what they may be. Yet this notion is in turn relatively less general than that of Marshall (1920) who defines economics as "a study of men as they live and move and think in the ordinary business of life". The ordinary business of life may also pertain to kinship, pleasure, pain, remorse, war, peace and friendship.

Common to these definitions is the generality of the notion which in reality defines the entire social setting. In other terms, economics is economics. It is a totality and not much can be added to that (Mouchot, 2002). If economics is a totality, then approaching conventional constructs of economic wisdom starting from how economists define their discipline does not reveal the whole picture. In fact another piece of the puzzle lies in what such definitions erroneously take for granted, and that is how economic theory sees human beings in the state of their basic and fundamental existence. Hence, what underlies our definition of economics is our definition of the homo economicus, or the economic man.

Krugman (2011) says “economics is basically about incentives and interactions—or, as Schelling put it, micromotives and macrobehavior.” In the actions and interactions of human beings, incentives and motives are tied to the pursuit of individual goals. The latter depends on the nature, or rather our definition thereof, of the economic human.

The homo economicus is the conceptualization of humans as reasonable and rational self-interested actors who have and exercise the capacity and the ability to make decisions and choices toward the accomplishment of subjectively specified ends. This notion stands in sharp contrast to the notion of homo reciprocans which conceptualizes humans as being driven by a desire to be cooperative in pursuit of improving their social setting and environment. Observe here that the homo economicus reflects a philosophical choice concerning the nature of humans. Accordingly, economists have chosen to define human nature as being homo economicus as opposed to homo reciprocans. Indeed, this choice of rational pursuit of self interest is nicely complemented by another choice of utilitarian ethics.

The history of the homo economicus goes back at least to John Stuart Mill’s (1874, 1836) explanation of political economy. According to him, “it does not treat the whole of man’s nature as modified by the social state, nor of the whole conduct of man in society. It is concerned with him solely as a being who desires to possess wealth, and who is capable of judging the comparative efficacy of means for obtaining that end.” As for incentives and motives being tied to self interest, Adam Smith (1986) declared in his Wealth of Nations, “It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest.”

2.2 Conventional Economic Wisdom: The Context

Conventional economic wisdom is a construct of consistent and coherent principles and assumptions about the behaviors of economic agents. Yet these principles and assumptions are based on a philosophical viewpoint of the nature of human beings, their goals and how they pursue their goals. Since self interested individuals are rational and do make rational choices in their daily life matters, it intuitively follows that the good of society is nothing other than the sum total of individual self interested pursuits.

The conventional construct of economic wisdom is a nice linear story with a happy ending. The story actors play their roles perfectly to the tunes of routine change that they can adjust to or non routine change that does not affect the direction of the scenario anyway. When the actors do not know what the next scene will bring, they calculate the appropriate probability distributions and in the end everything will gravitate toward equilibrium. In the final scene, the actors will get what they deserve and everyone goes home to enjoy an optimal life. It sounds like a fiction of science; yes I mean exactly that, a fiction of science movie doesn’t it? Let’s next sketch the highlights of the movie.

2.3 Principles of Conventional Economics

(1) Human beings are self interested rational individuals who make rational choices in their daily life matters (homo economicus principle).

(2) When faced with risky and uncertain situations, human beings formulate rational expectations based on cost-benefit analysis and follow an optimal course of action (rational expectations principle).

(3) Cost-benefit analysis leads human beings to seek the course of action that yields maximum benefits at minimum cost (Pareto optimality principle).

(4) When making their choices, human beings seek to reach the greatest benefit for the greatest number (utilitarian ethics principle).

(5) Each course of action has an amount of utility associated with it and utilities can be summed up together. Consequently, human beings seek to maximize their total utility via marginal analysis (utility maximization principle).

(6) The invisible hand of the market is rational and it allocates capital and resources efficiently. Market efficiency is ensured by competition and rational choices made by households and firms (efficient competitive market principle).

(7) Since markets are rational and efficient, there exists a set of prices that equate supply and demand and lead to general equilibrium in the overall economy. Equilibrium prices are considered long run, while actual prices are considered deviations from equilibrium (general equilibrium principle).

(8) Complex mathematical and statistical models can be built to represent the real economy on the basis of a series of restrictive assumptions. In spite of the unreality of the restrictions, model parameters or variables are calibrated to yield outcomes which are then generalized to cover the real economy as if markets, firms, households and institutions do truly behave in consistency with the model's prescriptions (as if modeling principle).

(9) Macroeconomic behavior is derivable from microeconomic foundations. In particular, households and firms behave rationally in competitive markets and their behaviors are aggregated to constitute macroeconomic behavior (the representative agent principle).

(10) Economic analysis is value-free, scientific or in some accounts purely descriptive. Therefore, analysis outcomes are natural, normal and universal. Any factors or forces that may interfere with the analysis are considered distortions that should be eliminated or minimized (scientific objectivity principle).

Combined together, these principles form the core of conventional economics as we know it today. They are not presented in any specific order of importance.

3. Critique of Conventional Economic Wisdom

The international financial crisis demonstrated that the story of economics did not have a happy ending. Neither did the story have a happy ending during the Great Depression, or the crisis of the early 1970's or the East Asian crisis. The fact is, the international financial crisis is the latest chapter in a book of failures encountered in the journey of the world economy, and one would be "irrational" to neglect the fair share of responsibility carried by conventional economics toward that. Actually, some have already started working on predicting when the next crisis will hit, how it will come about and due to what factors. After all, it is often said in the world of business that if we do what we've always done, we will get what we've always gotten. In an effort to avoid redoing what we have always done, it is necessary to reexamine the core fundamentals of contemporary conventional economics.

3.1 Limits to Selfishness and Rationality

John Stuart Mill excluded the Whole of man's nature as modified by the social state from the realm of political economy. However, he did not deny its existence. As a matter of fact, he admits in the same work the arbitrariness of his definition. Maybe Mill was trying to simplify the study of political economy by excluding the complexities that may result from modifications caused by interaction with the social state. Or, maybe he was making a conscious choice of a definition consistent with his conviction of a doctrine and an ideology. In either case, Mill may have been excused, for he did what he could for his time and space. But for how long and how

many crises is it going to take for us to throw our excuse out and reconsider the effect of interaction with the social state?

In the Wealth of Nations, Adam Smith proposed his economic theory in the context of the same approach adopted by Mill. Then again, he moderated his understanding of rationality and selfishness in The Theory of Moral Sentiments by claiming that individuals do have sympathy for the well-being of others. Long before Mill and Smith, Aristotle (n.d.) talked about the "greatest pleasure in doing a kindness or service to friends or guests or companions, which can only be rendered when a man has private property."

Rationality in economics is further narrowed to selfish rationality. In other terms, the homo economicus does not make a credible commitment to a course of action beyond his narrowly defined self interest. Amartya Sen (1977) pointed out the absurdity of selfish rationality in the following example of two strangers meeting on a street: "where is the railway? He asks me. There, I say pointing at the post office. Would you please post this letter for me on the way? Yes, he says determined to open the envelop and check whether it contains something valuable."

Rationality is also limited on empirical grounds by anthropological cross cultural comparisons (Mauss, 2006; Godelier, 1999) and behavioral economics experiments (Ariely, 2008). It has been demonstrated that traditional societies are held together by an ethic of kinship-based reciprocity. This ethic results into choices of production and exchange being made along the lines of patterns totally different from those of rationality. Moreover, a growing body of behavioral economics research experiments has demonstrated times and again that individuals make choices on the basis of approximate rules of thumb.

What Caballero (2010) calls the pretense-of-knowledge syndrome is yet another critique of rationality which was discussed by Austrian School economists such as Thorstein Veblen and Herbert Simon. The argument here stresses that uncertainty and bounded rationality are more realistic and consequently appropriate for economic choice making than the rational economic man who is assumed to be fully informed and to have a great understanding of macroeconomics and economic forecasting.

3.2 Limits to Knowledge and Information

Complete knowledge of circumstances and events surrounding a choice to be made is a necessary condition for a rational choice by the rational economic man. Indeed, the Chicago school of economics has built its glory on assumptions of rational expectations, perfect information, perfect competition and complete markets (Skidelsky, 2010). Even when the assumption of perfect information is relaxed, and that has recently been done by New Keynesians and Behavioral Economists, conventional economic models are still built as if individuals are little more than robots. They conform in their behaviors with strict overarching mechanical rules that economists determine in advance.

We have already discussed limits to rationality, and let us put aside for the sake of argument any considerations implicated in making a rational choice. How realistic and how viable is the assumption of complete knowledge? Is it prudent to build a theory of real world behavior on the basis of a completely knowledgeable human being?

Keynes himself believed that individuals are rational, or rather reasonable, but the future is not only risky, but also uncertain. Risk and uncertainty result from the possibility of change which could be of a routine or non routine nature. As Frydman and Goldberg puts it, to assume that non routine change is irrelevant is to suppose that nothing genuinely new could ever happen. This is as if economic agents and policy makers never search for new and different ways of using available resources. This is like saying they never revise how they think about the

future (Frydman and Goldberg, 2010). In the terms of Frank Knight (1921), “If all changes were to take place in accordance with invariable and universally known laws, [so that] they could be foreseen for an indefinite period in advance of their occurrence … profits or loss would not arise.”

To make the point more evident, it would help here to recall some basics of economics which seem to have been forgotten by conventional economic wisdom. In A World of Propensities, Karl R. Popper (1990) states, “Quite apart from the fact that we do not know the future, the future is objectively not fixed. The future is open, objectively open.” There exist complex interactive relationships among events, their makers and their contexts. It has been shown times and again by behavioral studies that these relationships may not be linear or rational and may therefore result into unpredictable outcomes. The notion of open future is complemented by another basic notion of limits to knowledge which was so eloquently put by Friedrich Hayek in his Nobel Prize reception speech in 1974 as he says, “I confess that I prefer true but imperfect knowledge … to a pretense of exact knowledge that is likely to be false.”

3.3 Limits to Utility

Utility is probably the most mesmerizing notion of conventional economic wisdom. Individuals make consumption choices based on the utility they offer. And since individuals are rational and have complete knowledge, they make choices which maximize total utility subject to the laws of diminishing returns and marginal analysis. So when consumer X goes to the market to purchase goods and services, she makes sure she has a very sophisticated calculator in her pocket so that she can compare, contrast, calculate and maximize. One kilogram of tomatoes is worth say 50 units of I don’t know what. That is because utility is an immeasurable psychological thing. Meanwhile, a computer is worth 600 units of that same psychological thing. As the process of utility maximization continues, the calculator is running full speed. Meanwhile, consumer X moves from one rational choice to another free of any biased or subjective or interactive or social effects. Indeed, her choices are not affected by interaction with others in the market, or by psychological pricing which may be totally irrational or by qualitative differences between the utility of this and that, or by compulsive urges provoked by this reason or the other. In the end, consumer X composes a basket of goods and services which maximizes her total utility. I wonder whose world is this and on what planet does it exist?

In an application of the concepts of field and energetics, adopted from the physics of the day, economists such as Leon Walras, William Stanley Jevons and Irving Fisher considered utility as a vector-field corresponding to energy (Mirowsky, 1989; Gordon, 1991). As such, it has to be regarded as an entity separate from the goods and services people consume. Yet, this separation in a way defies common sense. Some very neoclassical economists such as Friedman were at one point in time skeptical about this conceptualization of utility. However, to complete their edifice, neoclassical economists contend that even if the concept of utility as a field is intuitively implausible, the system works. Or does it? In an articulate and mathematical analysis, Mirowski (1989) shows the system to have a profusion of incorrect assumptions and arbitrary errors. First, the system does not explain production which could not be accounted for using the field concept. Second, utility is assumed to have certain properties necessary to ease mathematical manipulations and the assignment of these properties to utility is without any logical basis.

It is without logical basis to assume that the utility that arises from the consumption of one good is the same as that which arises from the consumption of another. Consequently, it becomes illogical to assume that we can add or subtract utility. Moreover, how does one assign monetary values to psychological states of mind? To make this point, Rothbard (2007) cites the example of a railroad which damages the land of a farmer by smoke. To

compensate the farmer for the loss, we assume it to equal the market price of the land. However, the market price of the land may be well below the value of the land to the farmer if he has a certain psychic attachment to it. Then what is the market price of the psychic attachment? Asking the farmer is useless because he may exaggerate the value. Meanwhile, the government whose action in this case is by definition non-market phenomena does not have a logical way of assigning fair value to the psychic attachment.

3.4 Limits to General Equilibrium

General equilibrium theory is often cited as the rigorous theoretical version of Adam Smith's invisible hand. It demonstrates the desirable properties of a competitive economy. With advancements in computer technologies, computable general equilibrium models of the economy or sectors thereof have flourished and become standard operating procedure in central banks, government agencies, international organizations, economic departments and journals. This has taken place in spite of a growing body of research and knowledge which sheds serious doubt about their usefulness. A detailed discussion of the limits to general equilibrium is beyond the scope of this paper. Nonetheless, we will focus our attention here on issues of uniqueness and stability. Ackerman (1999) states, "The equilibrium in a general equilibrium model is not necessarily either unique or stable, and there are apparently no grounds for dismissing such ill-behaved outcomes as implausible special cases."

The most important results of general equilibrium are two welfare theorems proved by Kenneth Arrow and Gerard Debreu in the 1950's. The first theorem states that in a stylized competitive market economy and under a set of familiar assumptions, any market equilibrium is a Pareto optimum.

Implied in this theorem is an interpretation that a competitive market economy leads to an efficient allocation of resources, following an appropriate redistribution of initial endowments. Assume that the model's assumptions exist in reality, and that is not the case, redistribute resources and let the market achieve a new equilibrium. It is implied here that the desired new equilibrium is unique and stable. If it is not unique, one of the possible equilibrium points may be more desirable than the others and there is no guarantee that the market will gravitate towards it. If on the other hand the equilibrium is not stable, then the market may never reach the more desirable equilibrium point. Even if it does reach it, it will not stay there once exposed to small random events.

The second theorem ascertains that any Pareto optimum is a market equilibrium for a given set of initial conditions and under a set of restrictive assumptions. There is an ongoing debate about interpretations of these theorems in light of basing them on unrealistic assumptions. For instance, if we allow increasing returns to scale in production which are common in reality into the model, the existence of equilibrium becomes uncertain and the second theorem may consequently no longer holds (Akerman, 1999).

In all cases, it seems that the more we restrict the equilibrium model's assumptions to reach stability and uniqueness, the more unrealistic the model becomes. By contrast, the less we restrict the model's assumptions to get closer to reality, the more difficult it becomes to achieve a unique and stable equilibrium. Portraying these complexities, Terry Barker (n.d.) mentions that "… multi-sectoral equilibrium modeling of climate mitigation policy is based typically on one year's data (and this is simply to calibrate the model to yield results of the right magnitude, rather than to provide empirical validation of the results)."

It seems that general equilibrium modeling is an unrealistic exercise in fancy mathematics. For instance, in research done to limit the number of equilibria, one result concluded that under conditions of mild assumptions, the number of equilibria will be finite. We beg to understand what good mild assumptions and finite equilibria would do to real economies. In another instance, one paper assumes more traders in existence than there are points

in the set of real numbers. This led Georgescu-Roegen (1979) to say, “There are endeavors that now pass for the most desirable kind of economic contributions although they are just plain mathematical exercises, not only without any economic substance but also without any mathematical value.”

3.5 Additional Limits

The limits presented above touch the very core of conventional economic theory but do not deal with a number of assumptions readily made to support the construct of this theory. In spite of numerous critiques of several of such assumptions, they have for long been taken for granted that they are no longer questionable.

The Representative Agent is one of these assumptions readily available to use in economic modeling. It is enough to model the behavior of one agent and then aggregate across an entire sector or an entire economy. The implied assumption here is that all agents will behave in the same rational or reasonable cost-benefit analyzing way and that may not necessarily be the case. We have already discussed limits to rationality. Moreover, there are a number of social and psychological considerations which may make different agents behave differently. Economic agents, the term here ought to change because it has inherited rationalization bias, are human beings not robots. They feel, act and react and in the process they influence and are influenced in ways which may skew away their means and ends from rationality.

Closely related to the notion of a representative agent is the move from the micro level to the macro level. In technical economic terms, this is called the micro-foundations of macro-behavior. This assumption totally ignores the effects of context and interaction on economic agents as we move from the individual to the collective. Overreaction in stock markets to a given news or rumor have proven to set the stage for a context of buying or selling where individual investors buy or sell without any rational explanation. Moreover, social and cultural studies have shown that interaction counts in ways unpredictable by rational expectations.

There is also the assumption of an objective and value free science. Economists like to think of themselves as scientific and value free. They presumably do not take value driven sides in what they do or recommend. They merely analyze, describe and attempt to maximize. However, when one puts together the pieces of the economic puzzle, walks a few steps away from the scene and takes a look at the whole picture from a distance, one can realize that the entire economic construct is shaped to advance a value driven ideology of a capitalistic market economy.

Take for example the definitions of abnormal, distortion and externality. The terms by themselves imply something out of the ordinary or out of the normal course of things. The three terms designate events that disturb the functionality of the market, for they escape the reach of the invisible hand. Consequently, the market is normal and anything outside of it is abnormal or distortion or externality. But who says the market is normal? What is normal anyway? What scientific or logical standard is being used here to designate what is normal and what is not? We can accept a value judgment stating that the market is superior say to central planning as an allocation mechanism. But we can’t in good scientific conscious go along with the partial notion of the market being the natural, objective and scientific mechanism of allocation.

4. Redirection of Economic Wisdom

In spite of shortcomings discussed in this paper and in the literature in general, Economics remains a robust discipline that we need today more than ever before and that we will need in the future a lot more than we did in the past. Great advancements have been made in the field and today we are better equipped to handle challenges,

thanks to the work and efforts of a countless number of economists, social and natural scientists, and practitioners. Yet the economic crisis we are experiencing today in the world economy and its potential implications for the future should in the least motivate us to reexamine what we do and how we do it in our discipline. Fortunately, this is already underway. However, the direction is not yet clear. On the positive side of things, we note advances made in the studies of prospect theory, behavioral economics, imperfect knowledge, limits to rationality and interdisciplinary approaches encompassing notions and concepts from related fields such as Psychology, Anthropology and Sociology.

One particular concern we have in this regard is that apart from a few papers proposed by a number of economists who are considered non mainstream, the debate seems to intensify within the same conventional fundamentals. Indeed, mainstream economists are still either entrenched in the context of an ideological paradigm so long and deeply held that it had become no longer questionable or simply too afraid to venture out of the comfort of known territories. Either case will likely lead us to miss out on the opportunity of change for the better. This change will not occur unless we direct our attention toward examination of the basics from which we all depart in just about every economic analysis we conduct.

It is our conclusion in this paper that we ought to put on the table the epistemology and the philosophy of economics which have for long underlined economic thought. It is time to readdress such questions as what kind of a truth is made by economic theories? From what assumptions about the nature of mankind shall we depart? Can human behavior be mathematically formulated and formalized? Is economics an exact science? What is an exact science anyway? Must economic theories be empirically verifiable? Have we gone too far in the construction of our internal logic that we forgot reality exists? It is by addressing these questions that we move forward. Otherwise, we will fulfill the prophecy that economics is too important to be left to the economists.

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