

Can Econometrics Rescue “The Economics”?

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Abstract:

Economists disagree; this is a matter of fact. Economics has an empirical methodology to verify whatever theories economists from different schools of thought advance in order to explain the economic phenomenon. This empirical methodology lends economists the confidence that most of the differences among them can be reconciled overtime by employing this methodology. If not today, future development either in economic theorization or estimation techniques may help them settle their internal conflicts. This paper argues that disagreements among economists are deeper than they are usually conceived of. These disagreements are spread over the entire spectrum of scientific theorization, i.e., explanation, prediction and control aspects of economics. Economists disagree neither because their understanding about economic functioning is imperfect nor because their econometric tool-kit of verifying their theories is limited; instead several deeply rooted reasons leave them divided on matters of economic theory and policy. It is argued that disagreements among economists are so deep that they become almost irreconcilable. Economics will continue as a rhetoric activity where different economists make use of authorities, stories, logic and metaphor to persuade each other.

Keywords: Political Philosophy, Scientific methodology, Value judgment, Econometric techniques, Rhetoric

1. INTRODUCTION

Economists disagree, this is a matter of fact, and they disagree so much that there are jokes around economic profession expressing this fact. The disagreements among economists spread over the whole spectrum of scientific theorization, i.e., explanation, prediction and control (policy). We see economists disagreeing over issues revolving around explanation of the underlying phenomenon (i.e., which theory is the right one), predictions (i.e., how changes in some aspect of economic

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reality is going to affect some other) and policy (i.e., how can we control and mould the underlying phenomenon to achieve the desired end). Economists even interpret the existence of these disagreements differently; one researcher can see these disagreements as a sign of crises while another [e.g., Klammer (1988)] as an expression of diversity of a mature scientific discipline that should be celebrated.

Economists like Friedman (1953 and 1968), Machlup (1965), Thurow (1982) and McCloskey (1985) try to argue that disagreements among economists are apparent not fundamental. Malchup (1965) says that economists disagree over applications not fundamentals. Friedman (1968), to illustrate this point, gives the example of minimum wage law about which economists (both proponents and critics of this policy) agree that it creates unemployment; they disagree over the desirability of this policy (i.e., on the normative domain). As put by Thurow (1982), minimum wage law is not a disagreement about economics, rather a political dispute. Friedman (1968) also concludes that most disagreements among economists (other than those involving value-judgments) are related to scientific judgments that can be empirically resolved (e.g., the 1960s and 1970s debate between Keynesian and Monetarists boiled down to the slopes of IS (investment-saving) and, largely, LM (money demand-money supply) curves which could be empirically tested under any given scenario for any country). These authors thus try to suggest that disagreements among economists are mis-specified, the core of economic theory is shared. Thurow (1982) asserts that “economists disagree much less about economics than the general public thinks. Most of the disagreements are about non-economic aspects of economic problems” (p. 176). However, this statement of his presumes a definition of economics that strictly separates it from political economy. This specification of disagreements among economists gives a hope that future developments in economic theorization, more complicated modeling of the economy and employment of advanced estimation techniques to gather empirical results will diminish the scope of disagreements among economists accordingly.

However, the assertions of Friedman and Malchlug, as compared to Thurow, are partly plausible, given the theoretical context that they were trying to rationalize in their times. It was the time of 1950s and 1960s when the debate of Keynesians and monetarists was converging on a 'neoclassical synthesis'. However, the analysis of disagreements by these two does not accommodate the issues resulting from the famous 'war over capital' fought between the two Cambridges (i.e., capital controversy). In contrast, Thurow's optimism expressed in 1980's seems more like an understatement of the state of economic diversity prevailing even within neoclassical economics at that time. It was the time when not only some new debates came forth within the neoclassical synthesis in the background of the Philip's curve controversy, role of expectations and search for micro-foundations, but some alternative approaches to this synthesis had also emerged or reemerged with new ideas. These alternative schools do not debate over the slopes of the curves nor do they talk about underlying assumptions of 'mainstream macroeconomics' (such as price stickiness and rational expectations). They even question the very concepts like equilibrium-based models of economy, value-free conception of economic theory, methodological individualism, Friedman's instrumentalist account of science and many more. The disagreement has now grown stronger and wider in scope.

This paper argues that the disagreements among economists are much deeper than they are usually conceived of. Economists disagree neither because their understanding about economic functioning is imperfect nor because their value-judgments are heterogeneous, even a perfect understanding of economic phenomenon will leave them divided for several deeply rooted reasons. Moreover, developments in econometrics can also not help reduce these differences among economists. It is only after analyzing the nature of the underlying reasons of disagreements that one would be in a position to judge if they are reconcilable.

2. THE FOUNDATIONS OF DISAGREEMENTS

As economics is one of the branches of Enlightenment Epistemology [see, Ansari (2004) for detailed discussion], underlying these disagreements among economists are some of the philosophical and epistemological strains that characterize this epistemology. Therefore, we start with the reason that creates a deeper and wider gap among economists and then move on to the relatively mild ones.

2.1. Conflict over Relationship between Individual and Society

The concept of human nature has remained one of the primary conflicting issues among Enlightenment philosophers. This concept plays a vital role especially in liberal ideological discourse. After rejecting the authority of religion, philosophers were interested in developing a moral science that would identify a course of events to which things tend to gravitate unless interfered with by an external body. But this conceptualization of society presumed establishing what were the sentiments and capabilities inherent in human beings *before* entering into the social contract or becoming member of a civil society. They believed that human nature can be known by considering how people behave in the absence of political and social institutions.¹ One such recent attempt is Rawls' (1971) conception of the 'Original Position' of man 'behind the Veil of Ignorance'. One expression that this asocial self assumes among liberal thinkers is in the form of 'utility maximizing agent'² — the homo-economicus of neoclassical economics. This particular liberal conceptualization of human self and its resulting social order is articulated in neoclassical economics which is based on the ideology of methodological individualism — the idea that all social and political institutions can and should be reduced to and understood in

¹ "to derive the laws of nature..., one must consider a man before the establishment of societies. The laws he would receive in such a state would be the laws of nature" (Montesquieu).

² "Nature has placed mankind under the governance of two sovereign masters, pain and pleasure. It is for them alone to point out what we ought to do as well as to determine what we shall do" [Bentham (1789)].

terms of autonomous self-interested individual's preferences and choices [Boland (1982)].

Many thinkers have attacked the idea of 'man before society' needed to establish human nature in the above neoclassical type of theorization. Communitarian philosophers [e.g., Sandel (1982), Raz (1986), Taylor (1990)] have argued that the isolated individual cannot be a viable analytical starting point for understanding societies. To these thinkers, the idea of methodological individualism presumes that men could exist before the establishment of societies — an idea which is quite implausible. Ferguson (1776) attacked such an asocial and ahistorical conception of human being (used, for example, by Rousseau) as:

"if we would know him (man), we must attend to himself, to the course of his life, and to the tenor of his conduct. With him the society appears to be as old as the individual ... If there was a time in which he has his acquaintance with his own species to make and his faculties to acquire, it is a time of which we have no record, and in relation to which our opinions serve no purpose and are supported by no evidence" (p. 9)

He further argued that "how can man come to know himself as nature made him once he has undergone all the changes which the succession of time and things must have produced in his original constitution, and so distinguish that which belongs to his own essence from that which circumstances have added to, or altered in, his original state". Methodological individualism takes people to be distinct from their ends and embodies a view that peoples' ends are formed independent of or prior to society which is seen merely as the outcome of contract between individuals whose ends are already given. This involves a mistaken relation between the individual with his society because it is the kind of society that affects peoples' understandings both of themselves and of how they live, argue communitarians.

Two distinct approaches, in opposition to neoclassical economics, can be identified based on this disagreement over relationship between individual and society. Marxism explicitly takes the individual's consciousness as an outcome of the material conditions he is exposed in a specific historical epoch. Hence, Marxism takes an opposite view to neoclassical economics when it comes to defining the

place of the individual in society. Neoclassicals and Marxists disagree over the very nature and desirability of market order. To the one, the market is a freedom and welfare-enhancing mechanism while to the other it is an instrument of perpetuating exploitation and subjugation of the masses. Underneath this disagreement between Neoclassicals and Marxists is their difference over the concept of what constitutes an ideal or desired social order to realize human autonomy. This disagreement in economics has a long history and is expected to continue endlessly at least in the academic world.

Another notable differing view comes in the form of Institutional Economics. Institutional economists, following the opinions of Veblen, argue that neoclassical type general equilibrium models of economy are static and takes social institutions (social norms and rules) for granted within which individual actors interact with each other and make choices. These critics of methodological individualism point out that in order to explain the origins of social institutions; one always has to presume individuals acting in a specific context. For example, game theory presumes a set of rules and constraints regarding the behaviour of individuals at the very outset. The standard economic assertion that economies take the form by virtue of millions of individual human actions is misleading because ‘interaction requires accepted rules, practices, customs and language understanding’ [Mayhen (2005)]. Even if we take individual as given, the rules of their interaction cannot be explained in terms of individual’s behaviour. For example, standard economic theory traces back money to market exchange hypothesizing that money originated as individuals’ voluntary cost-minimizing innovation to replace barter, but the neoclassical economic theory cannot explain how individual utility maximizers settled on a single numeraire [Gardiner (2004)]. In fact to present the haggling of the market process as support for evolutionary development of money presupposes a fairly high degree of specialization of labour and resource ownership—but this pre-market specialization is itself hard to explain. These economists ask for an evolutionary approach to economics to take account of the process of how institutions emerge, persist and then wither away. For this, they present the idea of methodological holism to take account of both individual as well as group behaviours. Obviously, general equilibrium

type modeling of society in neoclassical economics is hard to be made compatible with institutional economic methodological holism.

2.2. Differences over Assumptions Regarding the Nature and Working of the Market Economy

Scientific theorization is a complex phenomenon starting from pre-supposed (or pre-scientific) presumptions, hypothesization of the relevant phenomenon to be examined, laying down the test conditions or assumptions regarding the relevant features of phenomenon to be held constant (by assuming for example their initial positions, values and behavioural rule, etc) and then moving on to developing some testable propositions to be then tested empirically. One of the primary reasons why scientists disagree over the explanation of some underlying phenomenon is due to the differences in their assumptions or test conditions. Change in one or some of the assumptions of the theory can lead to different explanations or descriptions of the phenomenon. Similarly, a given predictive aspect of the theory can also be generated using two different assumptions. These aspects lead economists to disagreements which are unresolvable in the sense that those assumptions are usually not directly testable, rather the building blocks of the theory.

Many notable disagreements among economists can be explained in this light. (New) Classical-(new) Keynesian macroeconomic debate is one such example. Both of these schools agree that markets are needed to allocate resources, but disagree over how markets actually function. The new classicals see markets as self-adjusting equilibrating processes where prices fully and instantaneously adjust to accommodate the full implications of decisions made by all economic agents in the system. With this theoretical underpinning, they see no role of government policy in enhancing economic growth or fighting unemployment. New Keynesians, on the other hand, see market as stagnated or even disequilibrating process because of staggered price movement, adaptive expectations, speculative nature of investment etc. Keynesians demonstrated that supply does not create its own demand and under consumption and over production were systemic tendencies nurturing crises. Keynes, therefore, asserted that the state had a crucially important

role to play in sustaining full employment, equilibrium and steady state growth. The state is supposed to use countercyclical fiscal and monetary policy to influence expectations and expenditures and correct market failures. The differences in the policy prescriptions of the two are the direct results of *how* (i.e., under what conditions) the system works. The policy debate between monetarists and Keynesians is more like the same where both groups fundamentally disagree over the slopes of IS and LM curve; i.e. over assumptions regarding the how variables in the goods and money markets are interrelated with each other and by how much.

In the above examples we saw how differences in the underlying assumptions are leading to differences in the description and prescription given by the economists. The debate between new classicals and new Keynesian, in addition to the above dimension, reflects a good example of how a given observed phenomenon can be predicted using two different assumptions within the same framework. Keynesian economists explain the inflation-unemployment trade off largely in terms of market rigidities. But after the break down of the Philip's curve relationship, new-classicals theorized the same phenomenon of breaking down the Philip's curve relationship in the long run but effective in short-run under the assumptions of mis-perception theories and unanticipated policy shocks within rational expectation models. In other words, what was seen by one group of economists as an outcome of market rigidities, the other explained it in terms of the expectation formation process. Again, it is not an easy task to decide which side of the coin is the right one because their differences lie not in the predictions generated by their theories, but in the underlying premises that generated it (i.e. differences in its explanation). Empirical testing of their theories will not help resolve this debate because testing is conducted for the verification of predictions generated by the theories.

Orthodox/mainstream and heterodox (Post Keynesian, Circuitist) theories of money is another case in point in this regard [see, Gnos (2006) and Realfonzo (2006) for description of circuit theories of money and Davidson (2006) for its Post-Keynesian version]. Orthodox theorists depict the market economy as fundamentally a barter exchange system where money enters into the system exogenously as a facilitating numeraire. This gives birth to money neutrality, classical dichotomy and

policy irrelevance hypotheses. On the other hand, heterodox economists see the modern monetary economies as credit economies where money is determined endogenously in the process of production and exchange in this system [Graziani (2006)]. Post-Keynesian attack on mainstream economics can also be listed in this thread. The Post-Keynesians have argued that mainstream [especially monetary and (new) Keynesian] economic theory fails to take account of two fundamental insights of Keynes—the endogeneity, and hence its associated non-neutrality, of money on the one hand and the role of uncertainty and expectations in the determination of market outcomes on the other. Post Keynesians also analyze distributional issues and attempts to take account of the political context and implications of macroeconomic policy making. Like Keynes, the Post Keynesians accept the basic postulates of mainstream economics but qualify its predictions by reference to market reality—Post Keynesians pride themselves on their scientific realism—the aspect discussed in the next section. They argue that Keynes developed a theory of the economy that *exists* in reality, not what is presented in equilibrium methodology of neoclassical economists. Fundamental Keynesian concepts, such as time, uncertainty, price rigidities, contracts, endogenous nature of money, etc., do not exist in general equilibrium theory. Thus, Post Keynesians mainly attack some of the underlying assumptions of neoclassical economists about the working of the market economy. In other words, they can be seen as revisionists who insist that changed conditions require a reinterpretation of economic orthodoxy and a reformulation of economic methodology to take account for example of accelerated financialization, persistent unemployment, globalisation etc. [for a description of Post Keynesian economics, see Davidson (1998) and Lawson (1998)].

Debate over the reasons behind reoccurring business cycles is another example in this regard. Historically speaking, it was probably Marx (1898) who first tried to develop a systematic explanation of crises (though Ricardo had theorized the state of stagnation before him) in a market economy emerging due to a tendency towards decreasing rates of profit and increasing tendency of exploitation. But his ideas were treated as an outsiders’ observation. Schumpeter (1943) also presented the idea of creative-destruction to describe the dynamic essence of market order

that produces a continuous tendency of business activities to go up and down over and again. Traditionally, Keynesians have been explaining these cycles largely in terms of demand shocks resulting either due to ‘animal spiritedness’ of the investment component of aggregate demand or due to some other reasons. Lately, real business cycle theory has come up with an explanation of this phenomenon by referring to supply shocks generated by technological innovations and intertemporal labour substitutions [Lucas (1977), Kydland and Prescott, Edward (1982)]. Post-Keynesians like Minsky [see, Antoni (2006)] have singled out financial market speculations and bubbles as the underlying cause of this ‘evil’. All of these groups have their internal theoretical logic and some empirical support to believe that ‘they are on the right track’.

It should, however, be noted carefully that the above economic differences are neither about the desirability of the market economy nor about any of its related value-judgmental issues; rather about *how* the market economy *actually* functions. In other words, ‘how markets function’ is a debatable and conflicting issue among economists that result in many of the differences among them.

2.3. Differences over Scientific Methodologies

How science works and what *type of* explanation should we expect from science is another side of the argument that causes disagreement among economists. The ‘*how*’ here refers to the internal logic of the theory, i.e., the way a given theory links up different aspects and parts of reality with each other to explain it. Usually, a theory’s logic is reflected in its conception of cause-and-effect. Two kinds of approaches can be identified in this regard, one employed in neoclassical economics while another in Marxism. The neoclassical approach to doing science is what is termed as *reductionist* methodology. Here, it is assumed that every event (called dependent variable) has specific causes (called independent variables) that are essential for its occurrence. Explanation here refers to uncovering those underlying ‘cause(s)’; hence the name reductionism—reducing the explanation of an event to a set of key causes. The wide use of “functions” in neoclassical economics is an expression of its commitment to this reductionist approach. Marxists, on

the other hand, in general reject this reductionist approach to explaining a phenomenon. They employ a *dialectical* methodology [termed 'over-determination' by Wolff and Stephan (1987) to distance it from other notions associated with the term 'dialectics'] of inquiry. This method presumes that an event happens because of *everything else* happening around it and that happened before it. Events go hand in hand together having relationships with each other. This means that formal cause-and-effect conception does not apply in Marxist economics because here an event is treated as cause (of something) as well as effect (influenced may be by that something or something else) simultaneously. No explanation of an event is rendered as complete in this conception of causality because knowledge evolves with practice, as argued by Mao (1966). Thus; if two economists carry different conceptions of scientific methodology (i.e., how it works), they would disagree with each other even on the very notion of *explanation* of something.

The second aspect of scientific methodology (apart from the internal logic of theories to link up different aspects of the phenomenon) that creates rifts among economists is their differences over the truth-status requirement of their theories. Are theories meant for depicting reality or are they merely an instrument of explaining it with the help of predicting the course of events by those theories? This debate is known as Realism-Vs-Instrumentalism in philosophy of science. The realists insist that scientific theories should be explanatory not merely in the sense that they allow us to predict the observed phenomenon but also in the sense that the concepts used in those theories should also depict or refer to the observed phenomenon. In other words, they expect that scientific theories should be *true* as well. In contrast, instrumentalists believe that concepts used in theories are merely instruments of explaining the observed phenomenon, they are neither true nor false rather only more or less adequate to explain the given problem. The adequacy of theories is reflected in their predictive power, i.e., how well the theory is confirmed by the data. They deny the realists' demand that theories and theoretical terms should make correspondence to reality as it is not possible to settle the truth-status of those concepts. Friedman (1953) employed instrumentalism to defend neoclassical economics from the perennial criticism that it theorizes the economic phenomenon

(say the utility maximizing problem of a consumer) under unrealistic assumptions. Friedman defended neoclassical economics by asserting that ‘the only relevant test of the validity of a hypothesis is comparison of its prediction with experience’ and that ‘ultimate goal of a positive science is the development of a theory or hypothesis that yields valid and meaningful (not truistic) predictions about phenomenon not yet observed’.

But economists who do not agree with this instrumentalist account of science and look for factual explanations of phenomenon disagree with *a priori* neoclassical theories and try to develop theories around observed behaviour of economic agents. One such attempt is known as Bounded Rationality approach to economic agent’s choice problem [see, Conlisk (1996)]. First, these economists criticize the traditional rationality hypothesis on philosophical grounds. Sudgen (1991) provides a review of the state of rationality hypothesis, as presented in Savage’s *The Foundations of Statistics*, and argues that neither of the two axioms of rationality, *completeness* and *transitivity* of choices, can be defended from the view point of rationality as presented by economists. Similarly, Fullbrook (2005) provides a number of situations (e.g., social being, reciprocal imitation, self-referential goods, spontaneity, adventure, etc.) in which a consumer clearly violates neoclassical axioms of rationality. He emphasizes that ‘rather being obscure or far-fetched exceptions to the general rule, they characterize mainstream economic practice’ of modern consumer society (p. 83). Apart from these considerations, it has been argued by psychologists that individuals are not rational as proposed by economists. Rather, there are many obstacles to being rational in this sense. Simon (1979) says that human beings have a *cognitive limitations* (the limited processing capabilities of human being, the lack of knowledge of alternatives in the choice) which are a source of bounds in their rational decision-making. He discovered that when people confront a puzzle, they rarely reach a solution in a neat, linear fashion. Rather, they search in a haphazard way for potentially relevant facts and information, and usually quit once our understanding reaches a certain threshold. In Simon’s terms, humans are *satisficers* not *maximizers*. Their conclusions are often inconsistent or even incorrect. Kaufman (1999) extends *emotional arousal* (the idea that

high emotional intensity prevents optimal human performance) as another source for bounded rationality. These theories borrow a lot from psychological research which asserts that individuals make systematic errors by using decision *heuristics* (biases) or *rules of thumb* which fail to accommodate full logic of a decision, as when a person makes systematic errors by using adaptive rather than rational expectations. Equipped with the above ideas of bounded rationality, there is a fast growing field in economics, called *experimental economics*, designed to do research in the field of economics [Kahneman and Tversky (1979), Looms and Sugden (1982), Tversky and Thaler (1990), Kahneman and Tversky (1991)]. For the extension of bounded rationality in macro models, see Akerlof (1982), Akerlof and Yellen (1985a) and (1985b).

Thus, we find that differences in scientific methodologies can divide economists on very fundamental issues such as how to relate events with one another and what is the desirable criterion (predictability or realism) to seek while theorizing a given phenomenon. Again, these deeply rooted differences can be reconciled by no amount of empirical testing of those theories as the reason of these differences lie in the pre-empirical stage of theorization.

2.4. Differences over Value-Judgements

Needless to emphasize is the widely stressed reason of disagreements among economists that they disagree due to normative value-judgmental reasons. Even if we assume that economists have no disagreement due to any other reasons and have fully described some economic aspect, such a perfect understanding of economic phenomenon will leave them divided the moment we raise the practical question *how to use* this agreed 'fact' or knowledge? For example, suppose it is agreed by all economists that the 'gold standard will result in stable foreign exchange rates provided wages and prices are flexible'. The question arises: is this an argument against unions or against (or in favour of) the gold standard? The disagreement here rests in 'what goal ought to be achieved?' And even when a set of goals are agreed upon, disagreement may emerge over how to rank these different goals in order of priority. Is this more important to ensure a minimum living standard to the

workers by setting minimum wages or is it more important to minimize unemployment by not doing this?

One particular digression of thought that can be traced back to this specific source of disagreement is social democracy. Social democratic economists like Sen (1977 and 2001) have argued in favour of state provision of social or welfare rights (such as right to minimum education, health and income, etc.). They assert that in social calculation, placing all the weight on 'how much output is produced' (i.e., GDP) is ill-placed, equal weight should also be given to 'how it is distributed' because it is the later question that allows us to evaluate whether or not goods produced are generating real freedom (ability to choose life one values) for the masses. To them, development is good not for its own sake, rather because it allows people to choose the lives they value. In this line of argumentation, equity (provision of social rights) itself becomes a 'developmental issue' even if it does not guarantee more efficiency. Hence, the nature of disagreement between strict libertarians and social democrats is that of assigning appropriate weight to different aspects or goals. This, of course, is not an easy question to settle as there is no ready-made agreed upon criterion available to assign weights to these goals.

Finally, and unfortunately, even if we pretend to have settled all of the aforementioned disagreements among economists including those of value-judgments (in the sense that a set of goals have been agreed upon by economists as representative ones), yet economists would disagree about how best to achieve this end? Suppose a libertarian and a social democrat agree over the provision of free public education. Still they can disagree about what is the best way of rendering this end: should the state provide this education through public sector schooling and universities or by giving coupons to the deserving students to pay their fee at private institutions? The answer will most likely be different between libertarian and social democrat.

3. SCOPE AND LIMITS OF ECONOMETRICS IN SETTLING DISAGREEMENTS

The ability to explain data (i.e., observed behaviour) is said to be the eventual test of any scientific theory that it must pass. Economists also take pride in the scientific nature of their subject and hence subject their theories to empirical testing for verification to see if they work or not in reality. This view creates a hope that probably better and precise econometric testing of theories can help bridge differences by comparing them against *actuals*.

3.1. The Scope of Econometrics

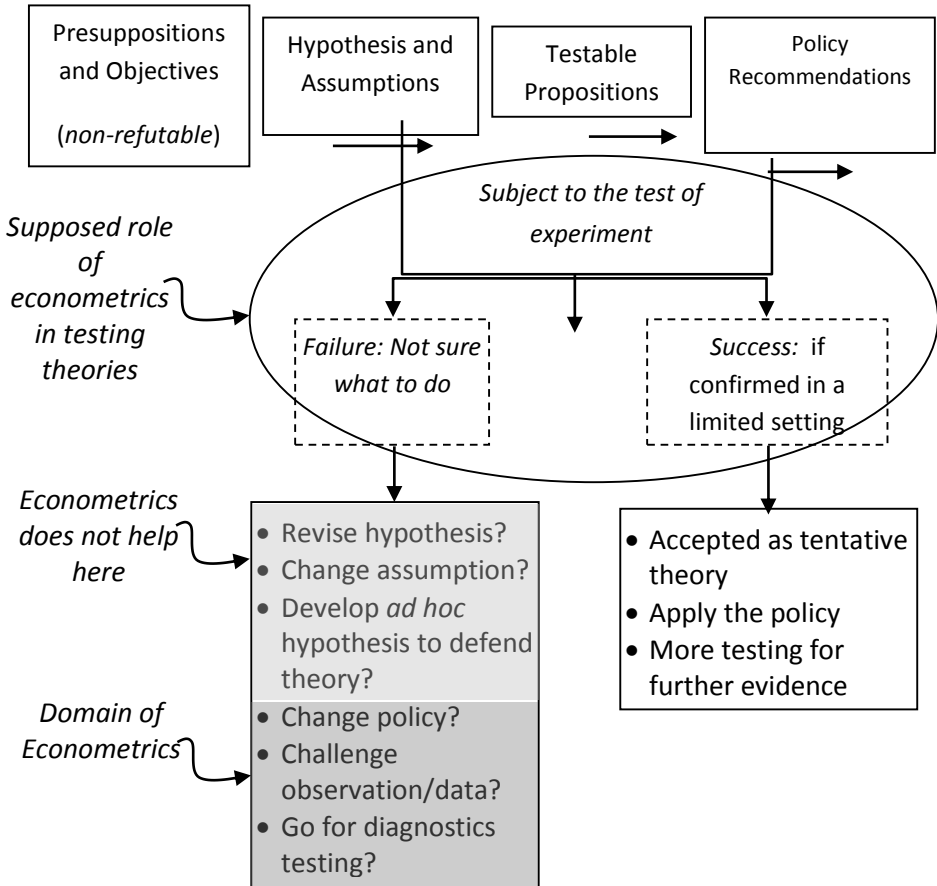
To see why this is hoping against hope, Table 1 explains as to which of the above disagreements can in principle be addressed using econometrics. It is clear to see that it is only the third kind of disagreements that can, if at all, be addressed (not necessarily settled) using econometric approach to economics. The remaining 3/4 are even beyond this so called methodology of testing against the *actuals*.

When considered in addressing this third kind of disagreements, the ‘harmonizing role’ that is expected from econometrics is quite limited even in this domain. Figure 1 depicts the typical process of developing theories (from objectives to policy) in economics.

Table 1. Scope of Econometrics in Settling Disagreements

	Kind of Disagreement	Nature	Econometric Role
1.	Differences over Social Theory	Pre-experimental	No
2.	Differences over Scientific Methodologies	Pre- experimental	No
3.	Differences over Assumptions	Partially experimental— Subject to the test of experiment	Yes
4.	Differences over Value Judgment	Normative in nature	No

Figure 1. Role and scope of econometrics in testing theories



The role of econometrics is supposed to be within oval-shaped circle—testing theories in the light of *actuals*. Empirical testing can result either in ‘success’ (which is usually the desired call of each school of thought) or ‘failure’. However, when economists face ‘failure’ in validating their theories empirically (i.e., data speak against their theory), it does not lead to the simple and linear conclusion of ‘falsification’ of the theory in question and hence need to look for an alternative one. Instead, things are much more complex even after this apparent failure as it is not clear ‘what went wrong’ and ‘where’. Interestingly, the researchers, even under this case of failure, have available many roots to do away with this failure without involving econometrics (e.g., by adding some *ad hoc* hypothesis, or declaring it a policy failure, or assuming it

to violation of rationality postulate on the part of agent, say, due to lack of information, etc.) as shown in the lowest left hand box of Figure 1). Hence, this figure illustrates that when it comes to settling disagreements about modeling assumptions among economists, econometrics cannot necessarily bring economists to agreement.

3.2. The Limits of Econometrics

Not only that the harmonizing role of econometrics is quite limited in settling even very limited range of economic disagreements, it can itself be a potential source of disagreement in this restricted domain due to its very inherent nature. Several issues in this regard, ranging from the choice of definitions of the variable, choice of modeling the theory or choice of the estimation techniques not only leave them unable to reconcile theoretical disagreements, but also create further disagreements among them.

Availability of valid and relevant data is first requirement for testing of economic theories. However, applied economists and econometricians usually do not collect data required for testing their theories; rather have to rely on data collected by national and international institutions. This data is prone to shifts in political regime, financial innovations and definitional disagreements. What is the incidence of poverty in any country? The answer depends upon how one defines 'who is poor'. Is income inequality increasing or decreasing over time in a country? Again answer depends upon which measure of income inequality (Gini coefficient, ratio of income share of the bottom to top 10 percent, mean-wage divided by median-wage) one uses. Apart from these, there are measurement errors in data. *Model specification* is another challenging issue. What are the key relevant variables to be included in the model and in which mathematical form? Omitted and unobserved variables and choice of instruments pose problems in model specification. Leamer (1983) shows how different specifications can lead to different outcomes by considering an example of impact of death penalty on murder rate. The result shows that controlling for different variables changes the effect of death penalty by significant extent. *Choice of econometric technique and tests* can also create unsettled

issues. Should the underlying phenomenon be treated as independent equations model or as simultaneous equation system? Which econometric test should be selected among the many available to select the relevant variables (different tests may favour different results)? In order for data to speak for itself, should we construct a vector autoregressive (VAR) type model to analyze the long run dynamics of the economy by studying the co-integrating properties of the variables in the model or develop the long run model of the economy first and then look for co-integration analysis?³ Or should we abandon the traditional estimation techniques and rely on the parameters generated by model simulation and calibration? Above all, *lack of unifying theory* in economics also poses issues as economic theory does not consist of a set of unifying equations which can simply be selected and estimated.

All of these are not only tricky issues but also inconclusive in the sense that answers depend upon several underlying assumptions regarding test statics, probability distributions and many other highly technical and probabilistic issues. It is for this reason that using the same data set, by modeling the same phenomenon a bit differently, or by using a different sample (may be across countries or over the same country for different time period), or by choosing a different estimation technique, different economists may end up verifying a different reality

Phillips (2003) explains general weaknesses and limitations of econometrics by outlining six operating laws of econometrics. He elaborates that significant developments has taken place in econometrics in the theory of identification, estimation of simultaneous equations system and examination of jointly determined variables through co-integration techniques. But he concludes that these methods are not sufficient for formulating relationship among variables that follow nonlinear patterns, hence, some methods would work sometime but not others. Phillips and Xiao (1998) explain that unit root tests, widely employed by applied econometricians, are always troublesome due to their nonstandard limit distributions. Unit roots are also defective because it is difficult to discriminate between stochastic and

³ Pesaran (1997) and Pesaran & Smith (1995) argued why a priori co-integration type approach to modeling long run path of economy is problematic and why behavioural theory must be developed before applying any econometrics.

deterministic trends. These problems get multiplied while applying unit roots on panel data [see, Phillips and Moon (1999) for details]. Examination of trends is considered very important aspect in macroeconomics. However, Phillips (2003) details out that no matter which estimation formulation one employs to capture data trend, one cannot justifiably assume that these formulations *explain* the process that make those trends in the real world. Spurious regression is one consequence of data with trends because any trend function turns out can be statistically significant in large sample. Above all, even if one can develop a model to represent a data, one cannot be sure that there is or can be a corresponding true data generating process.

Determination of causality among variables is crucial for appropriate understanding of affairs, good policy making and development in economic theory. Zaman (2009) argued that the prevailing approaches to determine causality in econometrics are problematic and do not give required results. Freedman (2005) shows that though several articles use regression analysis, however, the underlying causality claims of the researchers are not more than claims based on observed correlations in non-experimental data. Freedman (1997) writes: “For nearly a century, investigators in the social sciences have used regression models to deduce cause-and-effect relationships from patterns of association. In my view, this enterprise has not been successful” (p. 113). For almost any causal relationship among variables in economic theory, there are researchers arguing about causality in both directions. For example, a generally accepted belief is that money supply growth causes inflation. But Hendry and Ericsson (1991) dissented with this belief that showed that the causality is other way round. Similarly, estimation of consumption function has remained at the heart of macroeconomics, however, Thomas (1993) says: “Perhaps the most worrying aspect of empirical works on aggregate consumption is the regularity with which apparently established equations break down when faced with new data. This has happened repeatedly in the UK since the 1970s. ... the reader may be forgiven for wondering whether econometricians will ever reach the stage where even in the short run their consumption equations survive confrontation with new data” (p. 284). The foundation for this lack of understanding about causality is

much deeply explained by Hume who identified that only co-occurrence of events (i.e., correlation) is observable, not 'cause'. These econometric difficulties and forecast failures led some economists from assessing theory on the basis of data. Real Business Cycle (RBC) is one such approach that puts much emphasis on theory and attempts to calibrate theoretical models. Zaman (2012) explains that underlying methodology behind econometric is logical positivism which lost appeal back in mid of twentieth century. He shows how this positivist methodology led econometricians to a meaningless quest of finding patterns in the data.

Table 2 provides a summary of issues in disagreement among different schools of economics based on the underlying causes of disagreements. For learning from data about many crucial aspects of the real world" (p. 40). Had economic theory been capable of providing reliable relationship among variables, this may not have been a point of much concern for researcher. However, this luxury is not available to economists as outlined in the previous sections.

This takes us to what is stated in the philosophy of science as: conclusive verification or falsification, both are impossible to conduct in science'.⁴ The above discussion presumed that it is somehow possible to test a single hypothesis independently. Duhem and Quine showed that testing a single hypothesis is never possible; it is always a system of interrelated hypotheses that is tested while testing any given hypothesis. In other words, econometric testing of a hypothesis is possible within a holistic model [Curd and Cover (1998)]. If the hypothesis under examination is rejected, it is never clear which aspect of the model is rejected. This confusion is illustrated in the colored box of figure 1 that describes the domain of econometrics that even after the rejection of hypothesis, one cannot be sure what it tells researchers?

4. CONCLUSION

The paper analyzed the major reasons behind the apparent disagreements among economists. These reasons cover almost the whole spectrum of

Table 2. Summary of the Causes of Disagreements among Economists

Reason of Disagreements	Resulting Issues of disagreement	The debating schools
1. Differences in social-and-political philosophy	<ul style="list-style-type: none"> Relationship between individual and society; i.e., is it possible to conceive of an asocial self-interested individual? The role of institutions in defining individual behavior 	<ul style="list-style-type: none"> Neoclassicals Vs Marxists Neoclassicals Vs Institutional economics
2. Differences in assumptions about functioning of market economy	<ul style="list-style-type: none"> Is market a stable equilibrating process or chaotic in nature? Choice between monetary or fiscal policy—slopes of IS and LM curves Short run policy relevance due to structural rigidities or agent’s informational imperfections? Reoccurring business cycles come across—due to supply-or-demand shocks or due to financial bubbles? 	<ul style="list-style-type: none"> Classicals Vs Keynesians Keynesians vs Monetarists (New) Keynesians vs (New) Classicals Marxists, Keynesians, Real business cyclists, Post-Keynesians
3. Differences over scientific methodologies	<ul style="list-style-type: none"> How science works—reductionist or dialectic? Nature of scientific explanation—instrumentalist in generating predictions or description of reality 	<ul style="list-style-type: none"> Neoclassicals vs Marxists Neoclassicals vs Post-Keynesians and Experimental economics
4. Differences in value judgments	<ul style="list-style-type: none"> What goals ought to be valued? How different goals ought to be ranked? How best to achieve a set of agreed upon goals? 	<ul style="list-style-type: none"> Libertarians vs Social democrats
5. Differences over modeling and testing approaches	<ul style="list-style-type: none"> Choice of definition of variables Choice of modeling technique Choice of estimation techniques 	<ul style="list-style-type: none"> All of them

Source: Developed by the Author.

economics, i.e., the objectives of the process of theorization, the very object to be theorized, the assumptions regarding the functionality of the object of theory, the logic of relating different parts of the object of the theory to generate its explanation, the issues of ranking different aspects of explanation to put them into any use and the tools to be employed to verify the validity or truth-status of the theory. These differences, as put by Wolff and Stephan (1987), leave economists divided on selecting different objects for attention of theorization, using different vocabulary to define the same objects,⁵ applying different rules about how to connect different objects of theory, prioritizing different ends and finally differing about how to compare and test the competing theories. The deeper problem is that the objects of theories of any school of thought do not exist out there independent of their theories, their views of the world (observation of the objects) is affected by theories they use to explain them. Therefore, not only do their theories explain the world differently, but they also influence them to see an altogether different world to explain. This makes communication across economists difficult because the world they see is not the same for each of them as they disagree not on how to explain the given world, but also on what they perceive that world to be. The whole discussion, thus, takes to the agreed interpretation of economics by the otherwise rivals McCloskey (1988 and 1990) and Klamer (1983 and 1988) that economics is more of a rhetoric activity where different economists make use of authorities, stories, logic and metaphor (e.g., models) to persuade each other.

Given this wide and deep spectrum of disagreements among economists, it is unexpected that any future developments in economic theorization can eliminate these disagreements—thus, no hopes against the hope.

REFERENCES

- Akerlof, G. A. (1982) Labour Contracts as Partial Gift Exchange. *Quarterly Journal of Economics*, XCVII, 543-69.

⁵ For Example value, price, wage, profit, etc., have different meanings in the neoclassical and Marxist economics.

- Akerlof, G. A. and J. L. Yellen (1985a) A Near Rationality Model of the Business Cycle, with Wage and Price Inertia. *Quarterly Journal of Economics*, Supplement, 823-838.
- Akerlof, G. A. and J. L. Yellen (1985b) Can Small Deviations from Rationality Make Significant Difference to Economic Equilibrium? *American Economic Review*, 75, 708-20.
- Ansari, J. (2004) Rejecting Freedom and Progress. *Jareeda* 29, Karachi University Press, Pakistan.
- Antoni, E. D. (2006) Minsky on Financial Instability. In *A Handbook of Alternative Monetary Economics* (Ed.) Philips Arestis and Malcom Sawyer, Edward Elgar Publishing Limited, UK.
- Bentham, G. S. (1789) *An Introduction to the Principle of Morals and Legislation*. Reprinted in (1948), Blackwell, Oxford.
- Boland, A. L. (1982) *The Foundations of Economic Methodology*. George Allen and Unwin, London, UK.
- Chalmers, A. F. (1999) *What is This Called Science?* 3rd ed., Hackett Publishing Company, Inc., University of Queensland Press, Australia.
- Conlisk, J. (1996) Why Bounded Rationality? *Journal of Economic Literature*, XXXIV, 669-700.
- Davidson, P. (1998) Reviving Keynesian Revolution. In *Why Economists Disagree?* (Ed.) Prychitko, D., pp. 67-82, State University of New York Press, USA.
- Davidson, P. (2006) Keynes and Money. In *A Handbook of Alternative Monetary Economics*, ed. by Philips Arestis and Malcom Sawyer, Edward Elgar Publishing Limited, UK.
- Ferguson, A. (1776) *An Essay on the History of Civil Society*. Alex Callinicos 1969, *Social Theory*, 26, Polity Press, UK.
- Freedman, D. A. (2005) *Statistical Models: Theory and Practice*. Cambridge University Press, UK.
- Freedman, D. A. (1997) From Association to Causation via Regression. *Advances in Applied Mathematics* 18, 59-110, USA.
- Friedman, M. (1953) *Essays in Positive Economics*. Chicago: Chicago University Press.

- Friedman, M. (1968) Why Economists Disagree, In *Dollars and Deficits: Living with America's Economic Problems*. Page No. 1-16, Englewood Cliffs. Prentice Hall.
- Fullbrook, E. (2005) Are You Rational? *A Guide to What is Wrong with Economics*. Page No. 71-83, Edward Full Brook London, UK.
- Gardiner, G. W. (2004) The Primacy of Trade Debts in The Development of Money. In *Credit and State Theories of Money: The Contributions of A. Mitchell Innes* (ed.) Wray, L.R., Cheltenham, Page No. 128-172, UK.
- Gnos, C. (2006) French Circuit Theory. In *A Handbook of Alternative Monetary Economics*. (Ed.) Philips Arestis and Malcom Sawyer, Edward Elgar Publishing Limited, UK.
- Graziani A. (2006) *The Monetary Theory of Production*. Cambridge University Press, UK.
- Hendry, D. F. and K. A. Ericsson (1991) An Econometric Analysis of UK Money Demand in Monetary Trends in the United States and the United Kingdom by Milton Friedman and Anna J. Schwartz. *American Economic Review*, 81, 8-38.
- Kahneman, D. and A. Tversky (1979) Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47:2, 263-91.
- Kahneman, D. and A. Tversky (1991) Loss Aversion and Riskless Choice: A Reference Dependent Model. *Quarterly Journal of Economics*, 106:4, 1039-1061.
- Kaufman, B. E. (1999) Emotional Arousal as a Source of Bounded Rationality. *Journal of Economic Behaviour and Organization*, 38, 135-44.
- Kydland, F. E. and P. Edward (1982) Time to Build and Aggregate Fluctuations. *Econometrica* 50:6: 1345–1370.
- Klamer, A. (1983) *Conversations with Economists: New Classical Economists and Opponents Speak Out on the Current Controversy in Macroeconomics*, Totawa: Rowman and Allanheld.
- Klamer, A. (1988) Economics as a Discourse. In *The Popperian Legacy in Economics*. (Ed.) N. de Marchi, Page No. 259-278, Cambridge University Press, UK.

- Lawson, T. (1998) The Nature of Post Keynesian Economics and its Link to other Traditions. In *Why Economists Disagree?* Page No. 115-152, State University of New York Press, USA.
- Leamer, E. E. (1983) Let's Take the Con Out of Econometrics. *American Economic Review*, 73:1, 31-43.
- Looms, G. and R. Sugden (1982) Regret Theory: An Alternative Theory of Rational Choice Under Uncertainty. *The Economic Journal*, 92:368, 805-824.
- Lucas, R. E. (1977) Understanding Business Cycles. *Carnegie-Rochester Conference Series on Public Policy* 5: 7-29.
- Mao Tse-Tung (1966) On Practice in *Four Essays on Philosophy*. Foreign Language Press, China.
- Martin, C. and J. A. Cover (1998) The Duhem Thesis and the Quine Thesis. In *Philosophy of Science: The Central Issues*. Page No. 302-319 New York, USA.
- Machlup, F. (1965) Why Economists Disagree. *Proceedings of the American Philosophical Society*, 109:1, 1-7.
- McCloskey, D. (1985) *The Rhetoric of Economics*. Madison, University of Wisconsin Press, USA.
- McCloskey, D. (1988) The Storied Character of Economics. *Tijdschrift voor geschiedenis*, 101:4, 643-654.
- McCloskey, D. (1990) Story-Telling in Economics. *Narrative in Culture: The Uses of Storytelling in the Sciences, Philosophy, and Literature*, Page No. 5-22, New York: Routledge.
- Marx, K. (1898) *Value, Price and Profit*. London: Swan Sonnenschein and Co.
- Mayhin, A. (2005) Where Do Economies Come From? The Missing Story, *A Guide to What is Wrong with Economics*, Page No. 46-55, Edward Full Brook London, UK.
- Pesaran, H. and R. Smith (1995) The Role of Theory in Econometrics. *Journal of Econometrics*, 67:1, 61-79.
- Pesaran, H. (1997) The Role of Economic Theory in Modeling the Long Run. *The Economic Journal*, 107:440, 178-191.
- Phillips, P. (2003) Laws and Limits of Econometrics. *The Economic Journal*, 113:486, 26-52.

- Phillips, P. and Z. Xiao (1998) A Primer on Unit Root Testing. *Journal of Economic Surveys*, 12:5, 423–470.
- Phillips, P. and H. Moon (1999) Linear Regression Limit Theory for Nonstationary Panel Data. *Econometrica*, 67:5, 1057–1111.
- Rawls, J. (1971) *A Theory of Justice*. Harvard University Press, USA.
- Raz, J. (1986) *The Morality of Freedom*, Oxford University Press, UK.
- Realfonzo, R. (2006) The Italian Circuitist Approach. In *A Handbook of Alternative Monetary Economics*. (Ed.) Philips Arestis and Malcom Sawyer, Edward Elgar Publishing Limited, UK.
- Sandel, M. (1982) *Liberalism and the Limits of Justice*. Cambridge University Press, UK.
- Schumpeter, J. (1943) *Capitalism, Socialism and Democracy*. Routledge, New York, USA.
- Sen, A. K. (1977) On Weights and Measures: Informational Constraints in Social Welfare Analysis. *Econometrica*, 45, 1539-1572.
- Sen, A. K. (2001) *Development as Freedom*. Oxford University Press, India.
- Simon, H. (1979) Rational Decision Making in Business Organizations. *American Economic Review, Papers and Proceedings*, 69, 493-513.
- Sudgen, R. (1991) Rational Choice: A Survey of Contributions from Economics and Philosophy. *The Economic Journal*, 101:407, 751-785.
- Taylor, C. (1990) *Sources of the Self*. Cambridge University Press, UK.
- Thomas, R. L. (1993) *Introductory Econometrics: Theory and Applications*. 2nd edition, Longman, USA.
- Thurow, L. (1982) Why Do Economists Disagree? *Dissent*. 29:2, 176-182.
- Tversky, A. and R. H. Thaler (1990) Anomalies: Preference Reversal. *Journal of Economic Perspective*, 4:2, 201-211.
- Wolff, R. and R. Stephan (1987) *Economics: Marxist vs Neoclassical*. Chap 1, Baltimore: John Hopkins University Press.
- Zaman, A. (2009) Causal Relations via Econometrics. *International Econometric Review*, 2:1, 36-56.
- Zaman, A. (2012) Methodological Mistakes and Econometric Consequences. *International Econometric Review*, 4:2, 99-122.