

MACROECONOMIC THEORY AFTER THE CRISIS

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1. Introduction

Macroeconomics has come under heavy criticism after the financial and economic crisis that has engulfed the US and the global economies from 2007. Some prominent mainstream economists have lent their voices to this growing chorus. Nevertheless, many others continue to adhere to their earlier views. Policymakers have pursued approaches which seem to be contrary to the views of the mainstream approach. However, it seems to some that the US voters have not taken kindly to some of these measures that involve active government intervention in the economy. Moreover, the criticisms of mainstream macroeconomics do not have clear implications about where macroeconomics ought to go, or about how it will go.

The main purpose of this paper is not to speculate about what *will* happen, but to explore what *should* happen. It will discuss the desirability of change in a number of different dimensions: in terms of how the economy is viewed, methods of analysis, and macroeconomic policy. The focus will be on macroeconomic theory, but I will briefly comment also on some empirical and policy issues. The concluding section will comment on the actual possibility of change.

A few preliminary comments are in order about the state of macroeconomics before the crisis and the nature of the crisis, since the arguments made in the rest of the paper rely on some views regarding them. The discussion can be brief, since what is presented is more a statement of these views, rather than their justification. About the state of macroeconomics, I will use a recent paper by Woodford (2009) as a point of entry, not because I think it is a particularly good or important paper but because it tells us something about the perception of state of mainstream macroeconomics by one of its leading practitioners, and because it takes a fairly broad view of how one should evaluate macroeconomics.¹ From Woodford (2009, quotes from 268-9) we learn that “there has been a considerable convergence of opinion among macroeconomists over the past 10 or 15 years” which is a good thing and which has occurred due to the agreement around what has been called the “New Neoclassical Synthesis” that

“incorporates important elements of each of the [earlier] apparently irreconcilable traditions of macroeconomic thought” in terms of, among other features, “coherent intertemporal general-equilibrium foundations”, endogenous expectations formation and the monetary policy is a means of inflation control. About the crisis I will take the following features for granted. First, aggregate demand can affect output and employment and can remain at low levels for relative long periods of time. Second, expectations and animal spirits are important determinants of aggregate demand and can cause fluctuations in the economy at certain times. Third, financial markets can become fragile at certain times, and this can have a strong effect on aggregate demand. Fourth, distributional factors are important and interact with the output and growth performance of the economy, given the possible connections between distribution and profitability, distribution and consumer debt, and between growth, stagnation and poverty. Finally, the current crisis needs to be examined in the context of global structural changes.

2. Method

The method of mainstream macroeconomists is the use of models with the optimizing agents, in particular, the intertemporally – usually infinitely-lived – optimizing agent. Woodford (2009) justifies this approach on the ground that it allows the analysis of macroeconomic fluctuations and long-period dynamics with the same framework. Even if one accepts this goal, which I do (more on which later), it is not clear why we need the optimizing agent in the first place. Most economists are so enamored with this assumption – in fact it can even be called *the* fundamental tenet of neoclassical economics – that they do not even take the trouble of justifying it. When pushed, however, many will undoubtedly justify it in terms of their belief that individuals are in fact “rational”, and therefore that they are best represented as having utility functions, and as maximizing utility subject to some constraints. Some have, however, criticized this notion by arguing that the costs of gathering information and the limitations of processing it make people unable to optimize in the usual sense; as Simon (1976) claimed, we need to replace the neoclassical economists’ idea of substantive rationality by the more realistic notion of procedural rationality which takes into account these costs and limitations and examines the actual process by which

people make decisions. This criticism has more recently been strengthened by the findings of other behavioral economists who have found that even in simple circumstances in which all relevant information is available and the best solution is easy to find, people make errors, and that in general they make systematically and predictably irrational choices (see, for instance, Ariely, 2008). I have some complaints regarding this view, because it seems to me in many important situations, especially those relevant for macroeconomics, the future is uncertain – rather than risky in the sense that objective probabilities can be assigned to different possible outcomes – so that there is no such unique thing as the “rational” choice (although there may be more or less reasonable choices in some sense), but that points even more fundamental problems with the optimization method.

Careful defenders of the optimization method (see Boland, 1981) may argue that the method is followed simply as a principle of organizing thought, and not as a statement about how individuals actually behave, because it does not specify what is being maximized over what arguments and under what constraints. However, this interpretation implies that using the method cannot be seen as the only legitimate method of organizing explanation without some additional arguments. It may have some advantages in some contexts, for instance, because it allows a careful analysis of the constraints and choices facing decision makers. However, its advantages need not outweigh its shortcomings for all contexts and applications. There are good reasons to argue that for analyzing many economic issues it is extremely problematic. For the purposes of macroeconomic analysis the main problem is that if we use it we are usually led to make some other assumptions to make the analysis manageable and tractable. Some of these other assumptions usually included are: all agents are alike, so that they can be represented by the representative agent; that the future can be predicted probabilistically, so that we have risk rather than uncertainty, and that only a few possible deviations from “perfect” markets can be handled in the analysis. Such assumptions, which may seem like harmless simplifications, may well turn out too costly to justify the price to be paid, that is, the assumption that agents are constrained maximizers. There are other problems – those which lead to believing that the “distortions” can be precisely formalized and can be

removed with appropriate mechanisms – which are likely to result in expecting a great deal from policy interventions to overcome the effects of these distortions and in a tendency for theories to go in the direction of removing the “distortions” using more or less clever mechanisms which allow individual “rationality” to imply systemic “rationality”.²

Nevertheless, it may be argued – as some have done – that the method is used because it is “the only game in town”. This claim is empirically false. There are other approaches, including computational agent-based models (see Colander et. al., 2008), empirical models which do not rely explicitly on *a priori* theoretical models (see Hoover et. al., 2008), and theoretical models which do not rely on the optimization method. To illustrate the last, let me briefly mention one which does not throw the theoretical baby with the optimization bathwater. In using this method we start with some accounting identities involving flows and stocks (including those which show how stocks change due to flows), and fill in further equations which embody important relevant behavioral and institutional relations involving both flow and stock variables so that we can determine the values of the variables of the system given its parameters. The parameters may either be slow-moving variables, or variables involving which we do not have what we may consider systematically regular relationships. After this exercise, we can examine the dynamics of the slower-moving variables over time using additional dynamic relations to examine how the system evolves over time.

To understand the approach better, it is useful to compare it to other approaches. First, although we may be precise and rigorous in using mathematical techniques and providing precise conclusions, the approach should not be interpreted as proving us with precise real-world predictions. Although the models can be mathematical, the approach does not require us to take the view that all relations should be depicted mathematically: the relations between some variables may be not be sufficiently systematic, so that formalization can be counterproductive. Second, the relations embodied in the models using the approach can be based on empirical studies and stylized facts from careful analyses of institutions and individual behavior, but can also provide some guidance on what variables should be used for

econometric analysis, and how computable models can be structured (something I interpret Keen's paper as doing). Third, at least some of the relations embodied in the models can also be examined using optimization method; thus while the approach is not necessarily in opposition to the optimization method, it does not require it. Fourth, the approach is quite consistent with the method adopted earlier mainstream macroeconomic approaches of the income-expenditure, IS-LM, and aggregate-demand aggregate-supply models, that is, in using accounting and market equilibrium relationships with other relations representing the behavior of consumers, asset holders, firms, workers and unions, and government organizations.³ This is not to condone any particular type of such models which may be too simple or may fail to capture some essential characteristics of actual economies which are relevant to the problem being analyzed. However, it is to imply that in terms of *method*, the more recent models based on intertemporal optimization do not mark an improvement over the earlier mainstream models, and are more likely to be steps backward because of the assumptions that they typically require for analytical tractability.

We conclude this section by pointing out some strengths of this method. First, it provides a clear distinction between a method and the view of the economy, rather than conflating the two by defining a method in terms of some tradition which takes a particular view of the world. For instance, the optimization approach leads to a conflation between a methodological approach and a view of people as being in fact rational. Second, it is flexible enough to allow various kinds of mathematical methods, from stable equilibria to models with cycles, instability, multiple (even a continuum of) equilibria, and hysteresis (see Dutt, 2009), which can also be obtained in more mainstream models, but usually with more complex, opaque and implausible assumptions. Third, it is particularly useful in providing a framework for comparing and contrasting different kinds of macroeconomic approach which start with a common framework and then "closing" the system with alternative assumptions (see Dutt, 1990).

3. View of the economy

Mainstream macroeconomic models view the economy as one in which the future can be thought of in objectively probabilistic terms, and in which individuals form Muth-rational expectations (or which involve some form of learning mechanism). However, in terms of how markets function, there are two alternative approaches. One approach takes the economy to have perfectly flexible wages and prices in smoothly functioning markets, so that the labor and other markets always clear, and there is never any involuntary unemployment. Fluctuations in output are caused by technology shocks which result in variations in output amplified by changes in interest rates and the intertemporal substitution of labor. The other introduces a number of rigidities or distortions that interfere with the smooth functioning of markets, including imperfect competition in goods markets and wage rigidities in labor markets, which yield involuntary unemployment and short-run fluctuations in output due to aggregate demand shocks and supply-side shocks as well. In principle the approach can introduce a very large number of distortions, but in practice, since the models can quickly become very complicated, they include a very small number – and usually only one – of them. It may be noted that this division of mainstream models into two different types follows the same division between earlier models of the textbook-classical and neoclassical-synthesis Keynesian (with money wage rigidity) type (which did not explicitly incorporate risk and uncertainty), and the somewhat later new classical-new Keynesian distinction which came into existence in the 1970s and 1980s (which departed from the earlier models by introducing probabilistic risk and rational expectations).

An alternative approach replaces the assumption that the future can be viewed in objectively probabilistic terms by viewing the future as fundamentally uncertain in the Keynes-Knight sense (something that has long been stressed by Paul Davidson in terms of the notion of non-ergodicity). The fact that the future is uncertain does not mean that economic actors do not make decisions which can be modeled using equations based on behavioral regularities, but it does mean that such modeling should take into account how actors actually behave when they know that the future is uncertain. Such behavior

include attempts to take purposive actions based on shared rules and conventions discussed by Keynes and others (such as following what most others do, relying on ‘expert’ opinion, basing expectations about the future on current conditions, expecting current trends to continue unless there is strong reason to believe otherwise), taking evasive actions by postponing decisions and staying liquid in a variety of ways (like increasing money and near-money holdings and maintaining excess capacity) and by attempting to reduce uncertainty by entering into formal and informal agreements (for instance those that make money wages rigid through money wage contracts). Such contracts, rules and conventions can lead to specific and systematic relations between variables, but it is futile to seek for context-free general relations which are more or less immutable, but rather relations which depend on what institutions are actually in place, recognizing that different types of actors may follow different kinds of behaviors, and that behaviors may change suddenly and in unpredictable ways.

We may briefly outline some illustrative models using the approach and the behavior foundations which take into account uncertainty to see how they deviate from the view of the economy embodied in more mainstream macroeconomic models (for some recent examples of such models on which the following comments are based, see, for instance, Taylor, 2004, and Dutt, 2010). A basic model begins with simple saving and investment functions which embody simple behavioral rules – for instance making investment depend positively on the current rates of profit and capacity utilization – and pricing based on a simple markup pricing equation and determine short-run levels of capacity utilization, profit rates and rate of capital accumulation. Long-run dynamics involve capital accumulation and possibly changes in the markup. Extensions deal with various complications of which a few may be mentioned. First, income distribution is modeled allowing for different patterns of consumption behavior between upper and lower income groups, and for different sources of income, such as profits, salaries and fixed wages, to explore the relations between income distribution and rates of growth. The dynamics of distribution is analyzed by allowing for goods and labor market conditions to change distributional parameters. Second, financial considerations are examined using debt and other measures of financial

fragility, interest rate dynamics, and changes in confidence or animal spirit variables. Recent examples include formalizations of Minsky involving corporate debt and financial positions (see Taylor, 2004, 2011) and the dynamics of consumer debt (see Dutt, 2006a). Third, the role of government policy can be analyzed by taking into account the dynamics of government debt, government investment and infrastructure, and the behavioral rules of Central Banks. Among determinants of parameters which are *not* typically endogenized mathematically include what may be called institutional and political-economy factors, and with major structural changes involving technological factors because their interactions with other variables and parameters of the model are not easy to formalize as systematic relationships. Fourth, more systematic technological change is modeled by making labor productivity depend on learning by doing and labor market and goods market considerations (like labor shortages and the degree of monopoly), in addition to other more mainstream factors like education spending and research and development expenditures.

Four ideas that emerge from these types of models and their contrast with those of mainstream macroeconomic models are worth stressing. One is that the models do not contain any notion of “perfect” markets which are practically or theoretically desirable in any sense. Another is that the models are consistent with reasonably regular patterns of variables, but which may be unsettled by small exogenous or even endogenous changes, bringing about sharp financial and economic crises. Yet another is that changes in policies to make markets more flexible – for example by making the wage more flexible – often do not have desirable consequences in the sense of reducing unemployment and increasing rate of growth because they can increase uncertainty, have debt-deflationary effects discussed by Keynes (1936) and others, and have adverse distributional consequences which may lead to growth declines by reducing consumption demand (Dutt, 1990). Third, aggregate demand plays an important role in determining the dynamics of the models both in the short run, but also in the long run, thus making the mainstream dichotomy between the short run fluctuations and long run growth (which can ignore aggregate demand effects) inappropriate (see Dutt, 2006b, 2010). Finally, the models should be thought of as being

embodied in more complex “systems” which may be difficult to formalize mathematically but which involve the interactions of the variables of these models which such factors as the transfer of technology to countries with low wages, and to the role of the dollar as the preferred currency in international payments.

4. Policies

Since this paper is about macroeconomic theory rather than policy, I will not spend much time on policy issues, but confine myself to two issues implied by the approach to macroeconomic theory discussed so far.

First, policy-making in general should be interpreted more as an art than as a science or even engineering. Even if we analyze the economy in terms of precise mathematical models or econometric exercises, we cannot discover exact policy responses to problems and expect policies to have precise results. The models are no more than attempts to examine complex relationships and their implications using theoretical constructions which can help us to understand the main mechanisms at work. One should not expect them to predict what will happen if one or other parameter in the model is changed by policy. All we can do is understand what kinds of policies are likely to make it more likely in making some progress towards our goals. Unlike some policy makers we should not make precise predictions of how much output will grow or unemployment will fall, and not be surprised too much if our expectations regarding results are not fulfilled. Of course, if the policies being adopted do not work repeatedly, we should be open to other ideas.

Second, the debate between those who are very suspicious of government activity for others reasons (perhaps some more or less vague conception of free markets promoting individual freedoms) and those who think of government policies as the panacea, is ill conceived. As just noted, government policies may not work as precisely expected, and frequent changes in macroeconomic policy may make the future more uncertain and create more instability. However, the expectation that unregulated free

markets will solve macroeconomic problems and that more flexibility and less government intervention is better fails to take into account the well-worn issues of market failures, distributional problems and social problems, but also problems due to the existence of fundamental uncertainty and the fact that individual attempts to tame it, cope with it, and reduce it may not have socially desirable outcomes.

5. Conclusion

It is not as if the fact that problems of mainstream macroeconomics have suddenly emerged after, and been revealed by, the crisis. Its problems have existed and been appreciated by many for a long time; indeed, the real world has not changed drastically overnight. However, the crisis in the real world has led to a heightened realization of the problems of what passes as mainstream macroeconomics to a broader group of people. It has underscored some of its failings, including, as this paper has argued: those related to its method, that is, its obsession with the ubiquitous optimizing agent maximizing utility over time in a certain or objectively-probabilistic world, and its penchant for mathematical and econometric sophistication; its view of the economy as one in which markets work smoothly to produce perpetual full employment or in which temporary lapses occur due to a few ‘distortions’ in goods and labor markets; and its mechanical view of macroeconomic policy which takes the view that either the government should do as little as possible or do certain things which will have reasonably definite and predictable effects.

Criticism, however, is not enough. This paper has argued that macroeconomics should follow certain paths. One is that it should become self-consciously much more pluralistic, in a variety of senses, including method, views of the economy and its components, goals (which I have discussed in this paper to avoid entering into more controversial normative issues) and policies. This does not mean that macroeconomists have an obligation to specify in every research work they produce where stand in these senses, or argue in favor of his or her chosen stance and against others. Nor does it mean that they necessarily become partial towards approaches other than their own; such a tendency, in fact, may reduce their ability to proceed with their work and promote their own chosen approach. However, it does mean

that they should be wary of using epithets like “scientific” and “ad hoc” to refer to methods and approaches they like do not like (since, at least in economics, there is no absolute way to adjudicate what these terms mean), that they should try to become aware of and be somewhat open to other approaches, that some try to work using more than one approach, and that scholars in powerful positions – currently mainstream scholars – take some pains to promote approaches other than their own and consciously reduce the force of positive feedbacks in macroeconomic (and for that matter, all economic) scholarship. The main reason for this is that different approaches have different strengths and weaknesses, and it is an advantage that they should have the possibility of shaping our insights about the complex economy in which we live, not be entrapped by personal and group hubris, and be locked in to some approaches which can blind us to some major macroeconomic problems. The different approaches may well be complementary – some pairs more than others – in which cross-fertilization may be beneficial to both. All of us as macroeconomists, and macroeconomics and the economy, will benefit from such pluralism.

By arguing for pluralism, I mean that many flowers should bloom, but not necessarily that all should, because some flowers may turn out to be weeds after all. The point is that it is not obvious what separates flowers from weeds, since do know that more and more sophisticated econometric methods, or others appeals to science, cannot do that definitively. What it does require is that some flowers should be allowed to have some breathing room, to allow them to flourish, and be allowed to the market-place of ideas – not just among professional economists, but also among other members of society – so that it is possible to judge, as well as we can, their relative merits and demerits. To facilitate this, I have discussed one approach to doing macroeconomics, which: adopts the method of starting with accounting and other relationships between relevant variables and parameters and which examines how at least some of the parameters move over time, uses mathematics to examine some of these relations and their implications at a point in time and over time, and employs various empirical methods to relate these constructs to reality; views the economy as one in which uncertainty pervades many walks of life, and in which people individually or as groups follow some behavioral rules and conventions and in which distributional and

financial factors and aggregate demand play important roles; and according to which governments have a major role to play, but as an art form without expecting miracle cures.

Will such pluralism and the development and acceptance of alternative approaches actually occur? I am not sure. There are strong vested interests reflecting the power of dominant classes and groups and from the career interests of scholars, an excessive desire to be “scientific” and technically “cutting edge”, and there is ideological rigidity (from which we all benefit and suffer). Nevertheless, I am hopeful that the force of reason will prevail, at least among those of us who really trying to understand how the complex economy works, and will trump vested interests, intellectual conceit and ideological blinders.

REFERENCES

Ariely, Dan (2008). *Predictably irrational. The hidden forces that shape our decisions*, New York, NY: Harper.

Boland, Lawrence A. (1981). "On the futility of criticizing the neoclassical maximization hypothesis", *American Economic Review*, 71, 1031-6.

Colander, David, Peter Howitt, Alan Kirman, Axel Leijonhufvud and Perry Mehrling (2008). "Beyond DSGE models: Towards and empirically-based macroeconomics", *American Economic Review*, May 236-40.

Dutt, Amitava Krishna (2006a). "Aggregate demand, aggregate supply and economic growth", *International Review of Applied Economics*, 20(3), 319-336.

Dutt, Amitava Krishna (2006b). "Maturity, stagnation and consumer debt", *Metroeconomica*, 57(3), 339-64.

Dutt, Amitava Krishna (2009). "Path dependence, equilibrium and economic growth", in Philip Arestis and Malcolm Sawyer, eds., *Path Dependency in Macroeconomics – International Papers in Political Economy*, Houndmills, UK and New York: Macmillan Palgrave, 2009, 119-161.

Dutt, Amitava Krishna (2010). "Keynesian growth theory in the 21st century", in Philip Arestis and Malcolm Sawyer, eds., *Twenty-first Century Keynesian Economics – International Papers in Political Economy*, Houndmills and New York: Macmillan Palgrave, 39-80.

Hoover, Kevin, Soren Johansen and Katarina Juselius (2008). "Allowing the data to speak freely: The macroeconomics of cointegrated vector autoregression", *American Economic Review*, May, 251-55.

Keynes, John Maynard (1936). *The general theory of employment, interest and money*, London: Macmillan.

Minsky, Hyman (1982). *Can "It" happen again?* Armonk, New Jersey: M. E. Sharpe.

Simon, Herbert A. (1976). "From substantive to procedural rationality", in S. J. Latsis, ed., *Method and Appraisal in Economics*, Cambridge, UK: Cambridge University Press, 129-48.

Taylor, Lance (2004). *Reconstructing macroeconomics. Structuralist proposals and critiques of the mainstream*, Cambridge, Mass: Harvard University Press.

Taylor, Lance (2011). *Maynard's revenge*, Cambridge, Mass: Harvard University Press.

Woodford, Michael (2009). "Convergence in macroeconomics: Elements of the new synthesis", *American Economic Journal: Macroeconomics*, 1(1), 267–279.

NOTES

¹ It is interesting to note that the paper is based on a presentation made at the AEA meetings in 2008, *after* the onset of the current crisis, although perhaps Woodford had not had enough time to digest the implications of what happened a few months before his presentation.

² Another justification which may be given is that the method provides us with a criterion for judging what is desirable for society, that is, it provides a justification for policies in terms of increasing efficiency in the sense of Pareto improvements in terms of individual utility functions. I would argue that this justification fails for several reasons: because it ignores the notion that utility functions may only give us a method and need not represent the actual preferences of individuals; that even if they actually do represent individual preferences in terms of actions, they do not necessarily tell us about how individuals feel about the outcomes of their actions; and because of the endogeneity caused by the dependence of subjective preferences on states of the economy. Because of these problems we can instead focus on more objective indicators of performance such as the rate of economic growth –because of the opportunities it creates for improvements in well-being measured in alternative ways – and the distribution of income.

³ There are many other economists who follow this approach, consciously or not, including many of those who follow the Cambridge, classical-Marxian, neo-structuralist, and post-Keynesian traditions. It is beyond the scope of this paper to provide a list of such contributions and to show how they can be thought of as following this approach. I will later mention a few particular applications of this method.