The Rational Expectations Hypothesis: An Appropriate Concept?

INTRODUCTION

From the outset, it must be explicitly acknowledged that the rational expections hypothesis (REH), as espoused by the new classical school, is not merely a justification for the restoration of pre-Keynesian economic principles. Rather, it is an attempt to tackle the nature of uncertainty: this has, for far too long, been ignored. Uncertainty permeates the economic world: there is no excuse for constantly assuming it out of existence. However, I shall argue that the REH is an incorrect method of coping with uncertainty. This shall be attempted in three distinct sections.The first deals with why the REH is inconsistent in its approach to stochastic dynamics. Secondly, the specific nature of information in rational expections models will be discussed critically and finally, a brief application of these arguments to macro-economics shall be presented, contending that the REH is inappropriate. The contribution of rational expectations to econometrics is not dealt with in this paper.

THE REH AND UNCERTAINTY

The hypothesis in question is not merely the assertion of rationality of economic agents: it refers to a specific concept, developed from Muth (1961).[1] Loosely, it says that agents forecast a future value of some variable such that it corresponds to the actual process by which the variable is determined, with the efficient use of all relevant information. More formally, the subjective probability distribution of a future economic variable at time t coincides with the actual objective conditional distribution, based on all information at time t.[2] The implication is that the conditional expection is unbiased and the forecast errors are orthogonal i.e. they are independent of any variable that was known to the agent at the time of the forecast. So systematic errors cannot occur given the nature of the agent assumed, all errors are purely random.

To comprehend the significance of this theory, it must be remembered that the REH is, in essence, a reaction against classical comparative static partial equilibrium analysis. Sargent[3], in particular, has emphasized this theme. Stationary state economics, a legacy from the last century, assumed full knowledge and ignored uncertainty extremely inappropriate in a science of human behaviour. The old argument that all assumptions are definitionally unreal does not, in this context, capture the importance of the issue. Uncertainty must alter one's perception of indvidual actions. Therefore, Sargent argues, the REH introduces stochastic dynamics to economics, so providing an element of internal consistency to the neoclassical research programme.[4]

This defence of the REH is paradoxical however, precisely because of its inherent general equilibrium nature. The world of Arrow-Debreu is merely a mathematical abstraction. This, in itself, is not challenged- however, the acceptance of perfect foresight in all markets, for all future dates, is an expression in instrumentalism I am unwilling to accept. Tobin (1980)[5] has argued convincingly that, even though the REH accepts uncertainty and randomness, acknowledging that the assumption of market clearing in the style of Arrow-Debreu is implausible, the fact that agents expect what actually happens means the theory is firmly rooted in classical steady-state analysis.The REH is really traditional statics generalised to a suitably stochastic environment. As Brunner[6] highlights, little is accomplished by claiming to introduce uncertainty, while simultaneously assuming full information about the stochastic process.

The REH ignores Bayesian theory, the most appropriate viewpoint when dealing with the behaviour of individuals. In this light, probability is interpreted

in terms of a persons subjective "degree of confidence" in the future event. There exists, therefore no valid reason why different agents, given similar information, should arrive at the same estimate of the random variable in question. Thinking in terms of expected future values is quite misguided. Indeed, according to Tobin, the natural consideration under uncertainty is the variance of the distribution: the REH concentrates exclusively on the mean.

At a fundamental level, therefore, the nature of uncertainty must be considered. In economics,uncertainty does not only reflect states of nature, but also behavioural psychological human motivation which does not exist in isolation of the actions and motivations of other economic agents.[7] The only possible methodological salvation of the REH is, therefore, the assumption that all agents are perfectly aware of the reaction of others, which would merely be a reassertion of perfect knowledge.

It would be incorrect to view the REH as a new departure in economics. Anyway, the idea that the anticipated future can significantly influence the present is nothing new to Paul Sweezy's oligopoly theory, for example, is founded upon this notion. The Ricardian Equivalence Theorem, it is often held, dates from 1810! Normal income theories of aggregate consumption possess similar intertemporal foundations. One of the greatest insights into the psychological nature of economic man was displayed by Keynes' *A Treatise of Probability* (1921)[8]. He rejects the relative frequency approach, proclaiming it to be entirely alien to economics, while in the *General Theory* (1936)[9], this theme is developed, with an ingenious and novel approach to uncertainty in the asset market.

To conclude this section, then, uncertainty, which the REH pertains to model, implies the structure of the economy is inherently unstable, while the hypothesis assumes the opposite! This inconsistency follows the incessant drive to turn back the clock on the *General Theory* , causing some of Keynes's most remarkable insights to be lost. In particular, Lucas' models deal only with relative frequency concepts the difficulty created by attemting to model behavioural uncertainty does not justify assuming it out of existence

THE REH AND INFORMATION

As seen, the REH assumes the agent has full information on all exogenous variables, and on the structure of the economy. Abstracting now from the nature of uncertainty, this central assumption creates a further array of problems.

New classical theorists point the recurrent nature of events (business cycles, for example) as an indication of the knowledge held by agents on the structure of the economy. Nobody denies that many economic phenomena are indeed predictable. The REH, however provides no indication of how this knowledge is actually obtained, such that forecast errors are random i.e. no learning is considered. The actual dynamic process is ignored. Benjamin Friedman (1979)[10] has produced a model of rational expectations inclusive of a finite learning period (specifically a least squares regression with all information except that of the latest period) concluding that, in the short run at least, error orthogonality is likely to be violated. The learning period cannot be seen as instantaneous. Once again, the assumption of perfect knowledge or, more precisely, knowledge of the specification of all relationships in the structure of the economy is required to justify error orthogonality.

The recognition of the existence of a finite learning period, within which any assumptions about information do not necesarily hold, creates new complications to further disturb the new classical description. One byproduct of uncertainty in Government policy is the possibility of credibility problems, the classic example being the doubt nurtured in many, concerning the Conservative Govenment's ability to maintain it's anti-inflationary policies in the early 1980s, against the tide of rising unemployment. Lucas, of course, would hold that this is perfectly consistent with his rational expectations models, since "surprises" do occur, especially in unpredictable circumstances. Yet policy effects can never

fully be anticipated. The private sector cannot be held in suspended animation while the economic agent calculates the effects of some Government action. The Keynesian investment theory suggests that the degree of optimism prevailing is a vital consideration: it is arguable that the 1950s and the 1960s were inherently stable because of a considerable amount of optimism: this is untrue, though, of the post-1970s period.

Basically, the assumptions concerning information are grossly oversimplified. The crucial point that must be emphasized is not that it is unreasonable to assume that the Government is privy to precisely the same quantity of information as any other agent, nor that agents are required to be, in the terminology of Arrow, "superior statisticians" (this concept pervades the entire neoclassical paradigm- consider the theory of demand), but rather that the information is assumed homogeneous, thus preventing the possibility of behavioural uncertainty.[11] Without this assumption the notion of a "representative" agent, a vital one for the REH, loses meaning.

In summary, there is a huge conceptual leap between neoclassical utility maximisation and the REH, based, as it is, on unreal assumptions concerning the nature of information.

THE REH AND MACROECONOMIC POLICY

In this section, I shall use these theoretical arguments to elucidate various aspects of the macro-economy which invalidate the REH. It is often argued that rational expectations are nothing more than an analytical device constructed to cast a cloud over the heart of the proposition the acceptance of flexible prices and market clearing. In policy terms, the impotence of Government stabilization is emphasized, given the (strong) assumptions of the REH. Yet a cursory glance over the new classical analysis illuminates the distinction between rational expectations as a model-building device and market-clearing as a classical belief. It is submitted that the very core of the REH, the assumptions concerning information, are diluted to such a degree that the hypothesis becomes almost devoid of substance.

I shall briefly highlight some insights into macroeconomic phenomena offered by the REH. Modigliani[12] declares "..... the most glaring flaw of ..... [the REH] ..... is it's inconsistency with the evidence: if it were valid, deviations of unemployment from the natural rate would be small and transitory- in which case the *General Theory* would not have been written ..... ". Short run adjustment is an illusion: the REH fails to explain why deviations are drawn out. Lucas and Sargent (1978)[13] attempted this by the use of "propagation mechanisms"; the commonest being that which Lucas (1975)[14] argues that information is lagged, so that firms may confuse absolute with relative price changes. By the time the "mistake" is realised, the firm in question will be operating at an inappropriate level, with adjustment taking time. Similarly, Sargent (1979)[15] develops the notion of adjustment costs of investment to account for the slow reaction of firms.

Models of disequilibrium trading and institutional rigidities in the labour and goods markets are vehemently criticised by the new classical theorists for never specifying in whose interest these prices are set. Yet the aforementioned assumption of asymmetric information is just as arbitrary as any. The logic of this assumption must be stretched a great deal to account for periods in time such as the Great Depression in the 1930s. Can this seriously be written off as a response to "surprises", lagged information or slow adjustment on the part of firms, and voluntary unemployment on the part of workers? As Okun (1981)[16] remarks, an overemphasis on search theory ignores the fact that, in slumps, unemployment rises by layoffs rather than quits. Indeed, on this latter point, one feature which Lucas finds difficult explaining is the rise in the natural rate over time. Modigliani argues that this approach to the labour market implies the Depression was caused by an outbreak of "contagious laziness"!

It is not the purpose of this paper to analyse whether the Depression is viewed more appropriately in the traditional Keynesian disequilibrium context, or via the revisionist Friedman-Schwarz monetary approach. I do contend , however, that the REH clearly cannot provide an adequate explanation of this phenomenon. Nor is it my intention to discuss the whole nature of information and uncertainty applied to macro-models, except to argue that there is no reason to necessitate it being dealt with exclusively by equilibrium models. Asymmetric or incomplete information can just as easily be used in a disequilibrium context. Uncertainty is rife: nobody can be entirely sure if the relevant demand and supply shocks are temporary or permanent. Milton Friedman, for example was quite confident that OPEC would collapse and oil prices fall by 1976!

Ad hoc assumptions, used to defend the REH from the very problems I have discussed, tend to weaken the hypothesis significantly leaving what Townsend[17] calls language barriers between the new classical school and it's opponents, overshadowing a basic equilibrium/disequilibrium dichotomy.

In summary, I have argued that the conclusions of the new classical school concerning the duration of deviations from the natural rate and, especially, unemployment, are not appropriate when dealing with the macro-economy. Furthermore, in response to these inadequacies, the actual REH, it is contended, when modified in the aforementioned manner is no longer significant.

CONCLUSION

This paper has argued strongly that the REH is not an appropriate concept. It began with an abstract consideration of how the concept of uncertainty used in this hypothesis is misguided. From this, I examined the specific problems concerning the strong assumptions on information. The final section offered a somewhat brief taste of the macroeconomic issues involved, arguing that the REH is flawed; the unreal assumptions making it inapplicable in general. (It is advantageous when considering some specific markets, namely speculative ones.) The attempts by these theorists to adapt their models to suit the "real world" has caused the REH to disguise their true arguments, which are, needless to say, beyond the scope of this paper.

So, even though the discipline has no competent expectations theory, it would be unwise to accept the REH on these grounds given the myriad of problematic issues it raises.

Tony Annett

FOOTNOTES

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2 Lucas and Prescott (1974) "Equilibrium search and unemployment" *Journal of Economic Theory* 7, 188-209

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6 Brunner K (1984) quoted in Klamer op. cit

7 Pesaren M.H (1987) *The Limits to Rational Expectations* Basil Blackwell

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11 Pesaren op. cit

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stabilization policy?" *American Economic Review*
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14 Lucas (1975) "An equilibrium model of the business cycle" *Journal of Political Economy* 83 1113-44
15 Sargent (1979) *Macroeconomic Theory* . Academic Press. New York
16 Okun A (1981) *Prices and Quantities* Basil Blackwell
17 Townsend (1984) in Klamer op. cit