

# Endogenising Uncertainty<sup>1</sup>

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## Abstract

Uncertainty is an unavoidable feature of economic life, although we may cope with it sometimes by ignoring it. Institutions, conventions and behaviour are all conditioned by uncertainty, and they in turn condition uncertainty in a reflexive manner. For policy-making to be effective it therefore needs to draw on theory which fully encompasses uncertainty. But the predominant approach in economics treats uncertainty (if at all) as an exogenous factor arising in times of crisis, without any basis in the underlying theoretical framework. Policy drawing on this approach can actually contribute to the conditions for increased uncertainty in the economy. Rather, by using a different theoretical approach which builds uncertainty into its foundations, policy can be designed to address the sources of uncertainty or ameliorate its consequences. Further, endogenising uncertainty makes it less of a threat; indeed, accompanied by reasonable optimistic expectations, it is the basis of innovation in the economy and in theory.

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‘To teach how to live without certainty, and yet without being paralyzed by hesitation, is perhaps the chief thing that philosophy, in our age, can still do for those who study it.’  
Bertrand Russell, *History of Western Philosophy*.

## **Introduction**

The current uneasy stage in the ongoing economic crisis highlights the significance of expectations. Uncertainty about expectations has always been at the centre of Post Keynesian theory and methodology. It is welcome that there are increasing attempts now to incorporate uncertainty at the frontiers of mainstream macroeconomics. Yet this either involves continuing to conflate uncertainty with quantifiable risk (in more or less sophisticated ways) or else adding uncertainty into the existing framework as a shock or an additional constraint on full information. But how far uncertainty can be addressed is coloured fundamentally by the character of the framework within which it is embedded. The microfoundations of mainstream theory are in fact inconsistent with uncertainty. The purpose of this paper is to show how uncertainty can be embedded in economic theory in a much more thorough and consistent way, employing a different type of framework. This would provide a better basis for government policy, especially those policies designed to reduce uncertainty. Further, such a change of framework would require economists to address the uncertain nature of their own knowledge, and thus in a better position to reduce it.

The analysis of uncertainty which follows includes an analysis of how society deals with uncertainty, sometimes by ignoring it. While this can be a helpful coping mechanism in the short run, it is argued that it is the responsibility of government to address uncertainty in order to reduce it in the long run. It is argued that ignoring uncertainty except in times of crisis can create the conditions for a crisis. Much of the fear (or paralysis in Russell’s terms) created in a crisis is due to a high level of uncertainty which is treated as something beyond analysis.

The continuing inattention to uncertainty in much of economic theory can similarly be understood as a coping mechanism for economists. But, as a general denial of uncertainty other than as an exogenous factor, this mechanism renders economics vulnerable to the same kind of fear. The general response has tended to be to persist in denying uncertainty. This coping mechanism has implications beyond academia, in that it encourages a narrative without uncertainty which influences understanding in the economy and in government.

The first step is to make the case that uncertainty is an endemic feature of economic life (not just in times of crisis) and that it has real economic consequences; otherwise it is perfectly reasonable to exclude it from economic theory. The reflexivity of uncertainty is then explored: it is argued that the nature of the economic environment shapes uncertainty, but that uncertainty in turn shapes that environment.<sup>2</sup> The non-deterministic evolution of behaviour, conventions and institutions causes uncertainty. Yet, while behaviour, conventions and institutions may change in such a way as to make it even more difficult to form expectations, they may also evolve to help society cope with uncertainty, thus reducing it. Considering further the conditions for creative behaviour, which is a particular source of uncertainty, we then explore uncertainty in its broadest sense, allowing for the possibility that it has positive features in particular contexts, such that policy might encourage the conditions for uncertainty.

The paper continues with a discussion of the approach which theorising might take which incorporates uncertainty as a basic element of real experience, how this may provide a narrative

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<sup>2</sup> This use of the concept of reflexivity draws on Soros’s development of the concept (e.g. Soros, 2008).

for policy and practice, and as a result reduce the scope for uncertainty to paralyse action. We consider how policy-making has been influenced instead by a narrative which largely ignores uncertainty. Theorising can itself be understood as a mechanism for coping with uncertainty, and we consider the implications of theory which ignores uncertainty. But the possibility is explored that such an approach can create the conditions for crisis. An alternative, pluralist, approach to economic theory is discussed as allowing an analysis of the sources, nature and causes of uncertainty. The paper ends with a discussion of what policy with respect to uncertainty might consist of, considering particular examples but also the more general approach to policy-making under uncertainty.

### **Uncertainty exists and has real consequences**

In order to discuss whether uncertainty exists we need to be clear as to what is meant here by the term. In Knight's (1921) meaning, uncertainty is unquantifiable risk, i.e. a situation where there is no frequency distribution on which to base a probability estimate. A range of reasons is conventionally given to explain this inability to quantify risk: constraints in the form of insufficient observations, asymmetric information, cognitive limitations and so on. This is the source of the uncertainty captured in the concept of 'ambiguity' in the recent mainstream macroeconomic literature.

But much of the standard mainstream economics and finance literature ignores uncertainty by conflating it with quantifiable risk. Even though it may be accepted that risk cannot be quantified in general in objective terms, nevertheless it is argued, according to the Subjective Expected Utility model, that we have the capacity to make subjective probability estimates, so that unquantifiable risk is no longer relevant. Expectations thus take the form of the mean of a probability distribution, subject to quantified risk. The axiom of completeness on which mainstream choice theory is based is satisfied.

Weight is lent to this view by the commonly-held understanding that Lloyds of London will insure any risk, including those for which there is no relevant frequency distribution (see further Kyburg 2002). But, as Feduzi, Runde and Zappia (2012) argue, this does not mean that Lloyds are able and willing to quantify even subjective point probability estimates. Rather they are able to form a judgement about reasonable ranges of probability such that a price can be put on insurance based on the upper bound of that range. Feduzi, Runde and Zappia's analysis draws on Keynes's (1921) analysis of uncertainty, which goes beyond that of Knight in exploring the scope for ordinal judgements about degrees of belief even when the scope for quantifying probability is absent. As Keynes (1921: 176) put it: 'Many probabilities, which are incapable of numerical measurement, can be placed nevertheless between numerical limits. And by taking particular non-numerical probabilities as standards a great number of comparisons or approximate measurements become possible.' That these are not calculations based as if on probability distributions is evidenced by the fact that insurance brokers can quote such a wide range of prices even on fairly conventional risks. Rather than a binary divide between risk and uncertainty whereby uncertainty amounts to ignorance, Keynes was concerned with judgements under uncertainty, degrees of uncertainty and thus the scope for analysing uncertain knowledge.

For Keynes, risk is in general unquantifiable even in principle because of the nature of the economic system. Insofar as there is always a limitation on frequency distribution information by which to calculate probabilities, there is therefore always uncertainty.<sup>3</sup> But,

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<sup>3</sup> Davidson (e.g. 2002) discusses the requirement for quantified risk in terms of the incidence of ergodic processes (repeatable over time and space), which are largely absent.

Keynes's understanding of uncertainty suggests that there are times when uncertainty is particularly high, i.e. times of crisis. At such times the basis for judgement may be so weak that there is an unwillingness to set prices altogether (or as Runde, 1995, puts it, an unwillingness to place bets in the standard subjectivist Bayesian framework). The freezing of the interbank market as an early sign of the banking crisis thus provides concrete evidence of a high level of uncertainty. Risk of asset price falls, and thus default risk, was clearly high, but there was not enough confidence in estimating the scale of this risk to put a price on it; there was an insufficient basis for judgement even about an upper bound to risk.<sup>4</sup> Indeed the public discussion of uncertainty has clearly distinguished it from the standard mainstream economics/finance sense of quantifiable risk.<sup>5</sup>

If then it is agreed that uncertainty is a feature of the economy, why does it matter? The extreme circumstance of the freezing of markets was a critical factor in the banking crisis, with all its consequences for the wider financial crisis and the real economy. But uncertainty more generally can deter commitment to action. It is not just that expectations are pessimistic about the future value of assets (including human capital). Uncertainty means insufficient confidence in these expectations to justify taking action. As confidence in expectations continues to be challenged in unsettled economic conditions, firms are less willing to commit to long-term investment projects and banks are less willing to commit to debt contracts. At the same time households are similarly less willing to commit to major expenditures and to loan contracts. The upshot is impediments to the resumption of economic growth. The counterpart to an unwillingness to commit is high liquidity preference (Keynes 1936: ch. 12, Bibow 2009).

Just as there is uncertainty in the economy, there is scope for uncertainty among economists. A limitation on quantifiable probabilities in the economy impinges on economists' capacity to predict. The mainstream literature on economists' uncertainty however mirrors that on uncertainty in the economy. The 'model uncertainty' literature quantifies the risk that the selected model is not the best one. Indeed this provides one rationale for ambiguity in the recent literature – that agents are uncertain as to which is the correct model (see e.g. Hansen and Sargent 2012). But this is not uncertainty as we are discussing it here. The mainstream framework pitches the conceptualisation of this uncertainty as referring to a 'correct model', whereas, if we take uncertainty seriously, there can be no such thing (Lawson 2009).

The crisis provided some evidence that economists were uncertain in their capacity to analyse the crisis, particularly given the very limited extent to which it had been predicted. But analysing the crisis as a tail risk perpetuates the idea that economists' knowledge is quantifiable within probability distributions and that identifying the correct model is within our grasp. Thus, while welcome, the new attention to uncertainty in the mainstream literature is nevertheless accordingly highly limited, constrained by a framework which is itself inconsistent with uncertainty, since it implies that the economy is itself a closed system (Lawson 1997). But in the meantime there has been a groundswell of support for the development of alternative ways of thinking which indicates a loss of confidence in the mainstream approach among a significant number of economists.

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<sup>4</sup> The 'credit spread puzzle' literature cites uncertainty as a reason for higher spreads than would otherwise have been expected rationally, but it refers only to situations where an upper bound has been set, not to a complete absence of pricing (see e.g. Chen et al., 2009).

<sup>5</sup> Developments outside normal understandings of experience (and thus not accounted for in quantifiable-risk-based models) have been referred to variously as 'black swans' and 'unknown unknowns'. See further Runde (2009).

## **The sources of and responses to uncertainty**

The ultimate source of Keynesian uncertainty is the nature of the economic system (although cognitive limitations and information asymmetry can also play a part). Because institutions, conventional beliefs and behaviour evolve in a non-deterministic way (the economy is an open system), there is no given structure within which frequency distributions can be constructed on which to base risk estimates. Further, where not all possible outcomes are identifiable in advance, no quantifiable probability is even possible in principle. How much uncertainty there is depends therefore on the way in which social structures, conventions and creativity evolve.

But the relation between uncertainty and social structures is reflexive. While their evolution can cause uncertainty, it may also be a response to uncertainty. In order not to be paralysed by uncertainty, society has developed coping mechanisms. The evolution of government itself can be understood as a mechanism for supporting social order (Hayek 1973-9). Similarly money, as a safe asset, evolved on the basis of government support for the enforceability of contracts and as a safe harbour for wealth when uncertainty is high (Davidson 2002). Similarly society and its constituent individuals cope with uncertainty by acting on the basis of conventional judgements about specific expectations (Keynes 1937) and about more diffuse social relationships such as trust, and by following routines (Nelson and Winter 1982). All of these mechanisms include factors which in a mainstream framework might be thought of as impediments to free market forces but in fact serve to reduce uncertainty in everyday life such that it is not debilitating.<sup>6</sup>

A specific example of this endogeneity of uncertainty is the central bank provision of the lender-of-last-resort facility. Money evolved as a mechanism for addressing uncertainty and the state effectively franchised its provision to the banks. But this can only work if there is confidence in the capacity of banks to be able to honour their liabilities, in spite of the extent of their maturity transformation, which in turn requires a social convention of accepting bank deposits in payment. Seeing the challenge to this confidence posed by periodic crises, central banks undertook to supply liquidity under the lender-of-last-resort facility. This development reduced any uncertainty surrounding bank deposits so that money was better able to perform its function as a safe asset of providing a refuge against uncertainty.

But at the onset of the banking crisis in 2007, there were doubts as to whether central banks would continue to abide by the lender-of-last-resort convention. Uncertainty increased dramatically as confidence in bank deposits was eroded. The Northern Rock crisis in the UK in 2007 and then the collapse of Lehman Bros in the US both punctured confidence founded on social convention rather than calculative rationality. What was for many financial institutions a liquidity crisis turned into a solvency crisis as market valuations tumbled. The rupture of social convention caused a crisis of confidence, i.e. a leap in uncertainty. Some changes in conventions and institutions may thus actually increase uncertainty.

The initial prioritising of the moral hazard issue is a good example of uncertainty denial. The calculative rationality of banks was apparently more of a concern to central banks than the puncturing of a social convention which had held uncertainty at bay. A further example is provided by the focus of macroprudential policy on capital adequacy as a means to prevent further crises. Banks were required to increase capital in the 1980s, under the leadership of the Bank for International Settlements (BIS), at a time when they were holding significant amounts of bad debt and found it hard to raise capital. This spurred them on to securitise their loans and to

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<sup>6</sup> For example, contrary to the new behavioural economics literature, Herbert Simon saw heuristics as enabling rather than constraining behaviour (Earl 2012). See further Gigerenzer (2007).

seek profits elsewhere, notably in derivatives products, i.e. for the structure of banking to change. Both of these developments were major factors in the build-up to the recent banking crisis (Chick 2008). An attempt to increase financial stability created the conditions for financial instability.

Why would governments consider policies to reduce financial instability and thus uncertainty which have the opposite effect? Governments, like the private sector, function by means of conventional understandings, or narratives, which provide a coherent basis for policy. The dominant narrative underpinning consideration of the Basel guidelines is one which distracts from uncertainty. Banks are required to hold capital relative to assets weighted by risk. The first guidelines applied judgement to assign different classes of assets to risk bands, an approach which has elements of Keynes's judgemental probability.<sup>7</sup> But the framework was changed to allow large banks to calculate their own capital requirements on the basis of their own risk assessment. This is achieved on the basis of complex quantitative models which presume a stable structure, i.e. no unquantifiable risk. To the extent that banks themselves based their strategies on these models, the narrative of uncertainty denial can be extended to behaviour in the financial sector itself, explaining the increasingly excessive leveraging of portfolios in the run-up to the crisis.

Ignoring uncertainty is itself a coping mechanism (Dow 2012). This can be helpful in allowing entrepreneurs, for example, to act in spite of uncertainty; as Keynes (1936: ch. 12) argued, we never know enough about the future to justify action on rational grounds. But what we are considering here is an institutional structure (in both the public and private sectors) based on and also perpetuating a denial of uncertainty. But we need to pause to consider whether we would in fact expect policy which addresses uncertainty always to aim to reduce it. Is there any sense in which uncertainty might be seen in a positive light? A major source of uncertainty, in addition to changing conventions and institutions, is human agency and in particular creativity. New products, markets and production techniques arise which could not possibly have been part of prior quantification of risk and thus prior pricing of assets. The outcome then is uncertainty. But arguably it is uncertainty which is a major spur to creativity. It is the uncertainty about the future which excites those seeking new profit opportunities. Just as we saw uncertainty in times of crisis having real consequences, dampening economic activity, so this more positive aspect of uncertainty has real consequences, enhancing economic growth. Policy then might be addressed to encouraging this type of uncertainty as a spur to innovation, even though the effect on others would be increased uncertainty. Both for action-inhibiting and action-enabling uncertainty, the process is reflexive and has real consequences.

The argument that uncertainty encourages innovation is very different from the argument most commonly associated with Greenspan, that bubbles are a necessary side-effect of a market system which best encourages innovation. This latter view finds academic support, for example in Olivier (2000)'s argument that innovation is encouraged by 'rational deterministic' speculative equity bubbles – i.e. nothing to do with uncertainty. It is the build-up of the bubble which is seen as spurring on innovation, but that is the phase in which uncertainty-denial is most strong and so speculation is misunderstood to be 'deterministic'. Even when expectations are optimistic, partly because of uncertainty-denial, an uncertainty perspective suggests that it is the openness of the future which provides a strong spur to innovation. The policy issue then is how to provide a stable foundation for innovation, without creating the conditions for a crisis which will confound

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<sup>7</sup> Indeed the BIS stood out among monetary authorities as being alert to the onset of crisis, i.e. not suffering from uncertainty denial (see e.g. Borio and White 2004).

those expectations. As Keynes (1936: 322) pointed out: ‘The right remedy for the trade cycle is not to be found in abolishing booms and thus keeping us permanently in a semi-slump; but in abolishing slumps and thus keeping us permanently in a quasi-boom.’

### **Economic theory and uncertainty**

We have been discussing uncertainty as something which both influences and is influenced by economic structure and behaviour. This is very different from its treatment in mainstream economic/finance theory. There is good reason for this: this latter body of theory is built on the assumption that all goods and assets can be priced and that behaviour is governed by rational calculation with respect to specified goals. But if expectations are uncertain to some degree then there is no scope for ‘true’ prices and the scope for calculation is limited. We have seen that a structural shift in confidence in the banking system changed asset prices to such an extent that illiquidity problems turned into insolvency problems. But the standard deductivist mainstream theoretical system only works on the basis of a benchmark of rational choice until complete information, i.e. no uncertainty. Thus, even where uncertainty may be understood as arising from the nature of the economics system, it can only enter the formal analysis as an exogenous shock (see e.g. Bloom 2009) or as a constraint on full information which is in principle accessible (see e.g. Boyarchenko 2012). These literatures can therefore only identify uncertainty as influencing cycles in the short run, but not interfering with the re-establishment of equilibrium in the long run. Uncertainty therefore only appears in its action-inhibiting sense. As a shock or information constraint it is something of only periodic relevance to which policy may need to react, not an endemic feature of social systems.

Not only has uncertainty-denial been a coping mechanism for governments addressing a highly complex and changing world, but this approach to policy also finds justification in economic theory which ignores uncertainty. Not only were central banks sanguine about the state of banks’ balance sheets up to the breaking of the crisis, so were leading academic economists.<sup>8</sup> The Efficient Markets Hypothesis, which does not have a place for uncertainty, reassured that extrapolation on the basis of experience of a stable structure was justified. But, just as we noted the dangers of policy and institutions which have no room for uncertainty, ignoring it in theorising too, until a crisis breaks, can only allow coping in the short run. It is the mainstream approach to theory which has supplied the narrative on which the uncertainty-denial of much economic policy-making and practices in financial markets has been based.

The very act of theorising more generally can be understood as a means to reduce economists’ uncertainty. The methodologies we adopt can be understood as conventions to guide research in the absence of any universal principles, i.e. under uncertainty. The simplifications required of theory allow us to focus on particular segments of the complex economic system (using the *ceteris paribus* clause). But we can see that economic theory also responds positively to uncertainty. Adam Smith (1759) discussed how we are motivated by a sense of ‘wonder’ at new events for which theory has not prepared us. Indeed for many academics it is the fun of trying out new ideas and developing theory in new ways, i.e. innovative, creative activity, which motivates us, even though it means striking out into uncertain territory. But developing new ideas to explain unforeseen events sets our minds at rest, for these ideas reduce uncertainty.

Theory which had no room at all for uncertainty was ill-suited to a financial and economic crisis. In mainstream economics, as in the economy, the crisis was a shock, and in a crisis coping mechanisms break down. But because the uncertainty surrounding the crisis is

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<sup>8</sup> Examples are provided by Gillies (2012) of public statements made well into 2007 by leading economists.

regarded in mainstream economics, if at all, as an aberration, the emphasis now is on how to return to long-run equilibrium. Thus macroprudential policy is often discussed in terms of protecting financial institutions from crisis *ex post*. For many, persisting in thinking only in terms of quantifiable risk, the crisis was simply an unusual occurrence of tail risk. The application of the ambiguity concept to macroeconomics is welcome in that it does in part address uncertainty as unquantifiable risk. But its incorporation into a framework whose foundations do not allow for uncertainty means that, yet again, the outcome is one more constraint en route to a stable market equilibrium. The benchmark of market equilibrium and rational calculative behaviour remains at the core. Yet a Keynesian analysis indicates that it was ignoring uncertainty – in theory, in practice, in institutional design and in policy – which ultimately caused the crisis.

### **How to approach theory and policy to allow for uncertainty without causing paralysis**

Building uncertainty into theory is an exercise in realism; the case has been made above that uncertainty is a factor, not only in behaviour but also in the institutional structure and the conventional understandings which guide it. We have also argued that uncertainty has substantial real consequences, so it is important to include it in theorising. The first step then is the negative one of discounting approaches to theorising which exclude uncertainty. The deductivist approach of mainstream economics is built on axioms with respect to calculative rationality, while uncertainty is an absence of calculability. If the real economic system evolves in a non-deterministic way then full calculability is not even possible in principle (in the absence of cognitive limitations and information asymmetry). As a corollary, just as individuals do not have access to a set of probabilistic expectations which can always be held with confidence, so economists cannot reasonably aspire to representing the economic system in one deductivist formal model.

Of course a deductivist framework has great attractions. Not only is a complete deductivist system aesthetically pleasing but it also allows economists to cope comfortably with uncertainty by ignoring it. A theoretical approach which builds on uncertainty may be less aesthetically pleasing and potentially more uncomfortable. Thus Adam Smith (1762-3: 146), whose theory was built on a recognition of the uncertainty of human knowledge, spoke of the attractions of Descartes's deductivist theory of fluxion (rate of change over time) as follows: 'We need not be surprised then that the Cartesian Philosophy ... tho it does not perhaps contain a word of truth ... should nevertheless have been so universally received by all the Learned in Europe at that time. The Great Superiority of the method over that of Aristotle ... made them greedily receive a work which we justly esteem one of the most entertaining Romances that has ever been wrote.'

In particular, a theoretical approach which recognises uncertainty must take on board the fact that the institutions and conventions which guide behaviour are specific to historical, social and geographical context, belying the scope for universal deductivist theories. This does not preclude some general principles, notably with respect to the uncertainty of knowledge. But how these principles manifest themselves will vary from context to context, for example as institutions evolve with varying effects on the overall level of uncertainty.

If knowledge is uncertain and a complete formal representation of the most important features of reality is impossible even in principle then the alternative for realist theory is to be pluralist, i.e. to involve a range of methods, but also a range of lines of argument, each aimed at illuminating some aspect of reality. This approach can be compared with a rope, whose structure is over-determined with multiple overlapping short strands but which is stronger than the sum of

these parts. The alternative deductivist approach can be likened to a chain which is only as strong as the weakest link; the argument here is that ignoring uncertainty is a weak link. Certainly mainstream economics in recent decades has become somewhat fragmented away from the more clearly deductivist approach of general equilibrium theory, but it retains the crucial elements of the deductivist approach in the form of the axioms of calculative rational behaviour which preclude uncertainty. Even the new behavioural approach focuses on cognitive limitations, information asymmetries and exogenous emotional inputs as elements which distort rationalist behaviour, which is the benchmark. But taking uncertainty instead as the norm we see apparent distortions, such as heuristics, enabling decisive action rather than distorting it.

A pluralist approach sets out to have multiple strands of reasoning in order to add weight to argument. Analysing different aspects of economic systems requires different methods which do not all collapse into a formal deductivist framework. Further, conclusions from any partial theory are provisional, open to revision when factors are taken into account which were assumed away for the purposes of partial analysis, including evolution of the underlying structures, conventions and practices. But a pluralist analysis which takes uncertainty seriously would only allow partial analyses to simplify, not to contradict the central role in real economic life of uncertainty. Since the evolution of institutions, conventions and practices is an inherent aspect of reality, these would be the subject of separate analyses. But, unlike new behavioural economics and new institutionalist economics, these separate analyses do not start with a fictional benchmark of rational optimising behaviour; the benchmark is fictional because it is incompatible with a world conditioned by uncertainty.<sup>9</sup> Further, this approach allows an analysis of uncertainty itself – its nature, its emergence and reactions to it (see for example Runde and Mizuhara, eds, 2003, Skidelsky 2009). This kind of approach does not separate uncertainty off as outside the economic system, but allows engagement with it as economists. Analysis of uncertainty also allows for policy advice to understand and modify it, rather than accepting it as being exogenous.

### **Policy addressed to uncertainty**

The government's role with respect to uncertainty is to take the social view and act on it, something beyond the scope of individuals. While individuals may cope by ignoring uncertainty, it is government's role to take the broad view. This involves being alert to new sources of uncertainty, including monitoring the evolution of private sector institutions, conventions and practices which may contribute to uncertainty. In turn it involves attempting to influence uncertainty by encouraging appropriate change in institutions, conventions and practices.

In addressing the need to reduce the incidence and amplitude of financial crises, there might appear to be much in common between a Keynes/Minskyian approach whereby stability (characterised by uncertainty-denial) is understood to create the conditions for instability and a mainstream approach which regards a crisis as an aberration; both are concerned with reducing the causes of crisis and its consequences in increased uncertainty. But the policy solutions of each approach in fact derive from their different methodological foundations.

The mainstream approach takes as a benchmark rational, calculative behaviour with respect to a reality which is in principle (if not in practice) knowable. Policy solutions thus involve some combination of changing incentives (e.g. removal of the lender-of-last-resort facility) and constraints (e.g. firewalls round retail banking, limits on CEO remuneration) on the

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<sup>9</sup> What is being referred to here is what is known as 'old behavioural economics' and 'old institutionalist economics'.

one hand and improving information (e.g. central bank transparency) and encouraging rationality (e.g. consumer financial education) on the other. These recommendations all follow from a framework which is deductivist with respect to individual agency and calculative with respect to quantifiable expectations, i.e. a framework which has no scope for uncertainty.

An alternative Post Keynesian framework starts from an understanding of the economic system as open and thus yielding only uncertain knowledge. Society is seen as evolving in part to address this. In the absence of scope for rational calculation, society requires belief in some 'givens' as a basis for action. Thus society generates a money asset in the form of bank deposits, with the support of the state. The point is not that rational calculation continuously supports this system, but rather that society (and its constituent individuals) can rely on trust without the need for calculation. This applies to trust in banks but also in the central bank's oversight of the banking system. The purpose of regulation, supervision and monitoring of retail banks is thus to ensure as far as possible that banks do not fail; the answer to moral hazard in the form of allowing banks to fail destroys trust, requiring the challenging policy response of rebuilding that trust. Moral hazard is clearly a problem to be addressed. But the point is that, in a crisis, the policy priority should be to shore up those institutions and conventions which underpin trust. The design of institutions and practices to reduce moral hazard is a matter for sober policy design away from crisis situations.

Trust enters more generally into market relations. While the mainstream approach depicts trust as a calculative phenomenon driven by self-interest, an ('old') institutionalist approach rather depicts it as a conventional judgement, built on long experience, which underpins economic activity (Hughes 2011). Thus for example expert financial advice is followed on the basis of trust in the adviser. Financial education can help, but the point of an adviser is to make up for lack of specialist expertise. Similarly the small local financial institutions which have forged bonds of trust (credit unions, savings banks, cooperative banks etc) have done well in the crisis when trust in the large banks was so badly damaged. There is a limit to how far trustworthy behaviour can be regulated for if behaviour is in fact governed more by conventional judgement than calculation. More important than detailed regulatory constraints is the need for government to promote functional finance, for example by providing active support for small local financial institutions,. This support can extend beyond the financial subsidy necessary to help them counter the market power of the large banks to active promotion of a socially aware culture in the financial sector.

There is a difference too in the way that policy is presented. The mainstream approach supports transparency to encourage convergence if understanding around the 'correct' model, such that policy is presented as a technical exercise. When there is a crisis, there is an expectation that governments have failed in this exercise and thus need a better technical exercise. The alternative approach adds to the discussion of technical matters such as regulation and interest-rate setting by conveying a narrative which includes the need for a change in practices and understandings; in particular it includes in the narrative the need for markets to accept their own limitations and proceed more cautiously as a result. This of course also applies to governments themselves, recognising their own uncertainty.

## **Conclusion**

It has been argued here that uncertainty is a pervasive feature of economic life and is important because of its consequences for economic activity. But, rather than an exogenous factor over which governments have no influence, it has been argued that uncertainty can be modified by

changes in institutions, conventions and practices. Even where uncertainty is welcome as the essence of a creative environment, policy to address some aspects of uncertainty (such as that which dominates economic life during a crisis) can better support innovation.

It has been argued further that it would be inconsistent for economic theory to be grounded in assumptions about behaviour which presume an absence of uncertainty. Rather a range of methods and theories is required which illuminates the particular institutions, conventions and practices relevant to a particular context. The scope for policy arises from the argument that uncertainty itself is open to analysis. If governments had understood better how their predecessors had built up a mutual-support system with banks which reduced uncertainty, they would have been less willing to deregulate banks on the one hand and consider withdrawing support on the other. If central banks understood better the full significance of uncertainty they would put less faith in quantitative risk measures as a basis for capital requirements and put more faith in other methods of building knowledge about practices in financial institutions and the implications for vulnerability to unforeseen market developments in the future.

In summary, the analysis throws up the following principles to guide policy with respect to financial instability:

1. address uncertainty as an endemic feature of the economy, shaping and shaped by institutions, conventions and behaviour, rather than an exogenous factor relevant only to crises
2. put the priority therefore on analysing and addressing institutions, conventions and behaviour (both within the financial sector and in the rest of the economy) with a view to restoring trust
3. establish close working relations with financial institutions to keep updating the knowledge (as distinct from the narrower notion of information) required to form judgments about how conventions, conventional judgement (market sentiment) and practices are evolving
4. draw on a range of methodological perspectives to inform judgement, no one perspective allowing a complete picture

But economists themselves should also take uncertainty seriously, not only in the design of their theories but in terms of their own uncertainty. The mainstream approach has promoted the perception of economics as a technical discipline which is capable of designing a 'best' model of the economy as the basis for policy. But if economic developments are in fact the outcome of evolving institutions, conventions and behaviours, responding to and in turn generating uncertainty, not only is there scope for a range of ways of theorising about them, but theories can be expected to vary with context over time and space. Rather than dealing with uncertainty by ignoring it, economics is more useful for guiding policy-making if it addresses it.

Different theoretical approaches address uncertainty (and indeed economic analysis) in different ways, drawing on their own general principles in order to address particular contexts. Such theories are currently available in a range of methodological approaches: 'old institutional', 'old behavioural', neo-Austrian, Post Keynesian and so on. It is common to understand these approaches as being outside a discipline which the mainstream has defined by its own methodology. But taking the uncertainty of economists seriously strengthens the case instead for an academic environment which supports more variety. There would then be scope for meaningful discussion between mainstream economists and non-mainstream schools of thought about endogenising uncertainty. A pluralist discipline would also provide a more robust basis for policy-making.

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