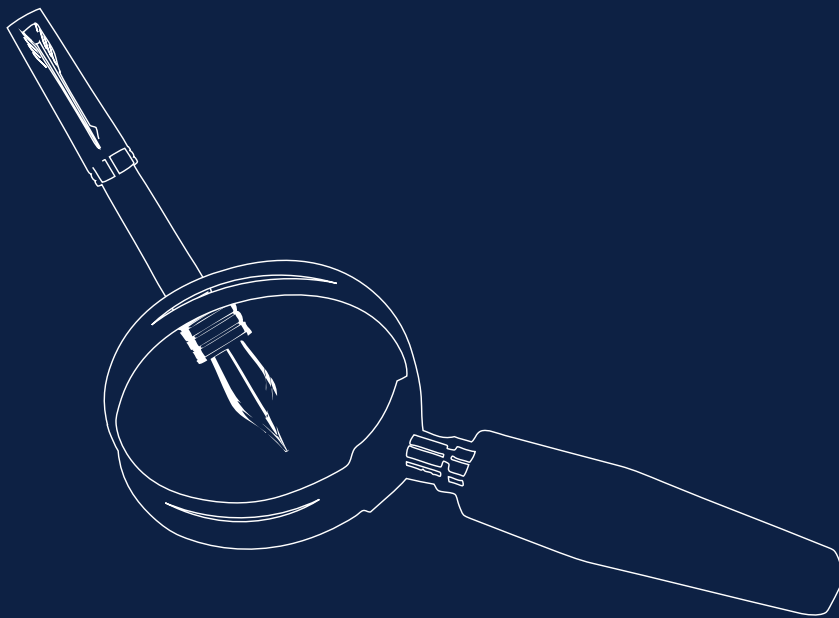


■ ECONOMIC STUDIES ■ POLITICAL STUDIES ■ PROSPERITY STUDIES

THE LEGATUM INSTITUTE
Charles Street Symposium

What Do We Know For Certain About Uncertainty?

KEYNOTE REMARKS BY PETER LEWIN



What Do We Know For Certain About Uncertainty?

KEYNOTE REMARKS BY **PETER LEWIN**

Presented at THE LEGATUM INSTITUTE CHARLES STREET SYMPOSIUM, 10 June, 2012

ABOUT THE AUTHOR: Peter Lewin

Lewin, a native of Johannesburg, South Africa, studied with Ludwig Lachmann at University of the Witwatersrand and earned a PhD in economics from the University of Chicago under Gary Becker. He is currently clinical professor of economics at the University of Texas at Dallas (UTD), School of Management. He has taught at UTD since 1979, except for 1986-1991 when he was a founding shareholder of a very successful digital-age start-up. Lewin has published in monetary economics, human capital, the economics of discrimination, organisational and managerial economics and a variety of other subjects, but is best known for his work on capital theory (*Capital in Disequilibrium*, 2011 [1999]). His work on capital, and its relation to the theory of the firm, has led to some related contributions in the management studies literature.

ABOUT THE CHARLES STREET SYMPOSIUM

The Charles Street Symposium is the Legatum Institute's new annual forum for the world's leading young economists. The inaugural symposium focussed on issues of economic risk and uncertainty.

Thank you very much to the Legatum Institute and all the organizers of this inaugural Charles Street Symposium. I am honoured to have been invited and delighted to be part of this exciting venture.

My subject tonight is uncertainty and what we know about it. Surprise, mystery, anxiety and, of course, profit, are all implications of this phenomenon that we call uncertainty. Pretty much everything we know about humans in their social lives is connected to uncertainty, the fact that we do not know what is going to happen; people plan, they relish, they fear, but they don't really "know" for sure what is going to happen. As George Shackle would say, we live in the fleeting present, imperfectly remembering the past, anticipating the uncertain future. In that sense the uncertain future is very much part of the present, and it shapes everything we are and everything we do.

So uncertainty refers to a "lack of knowledge" to the not-knowing. And we know that we don't know. No less an authority than Donald Rumsfeld informs us:

My topic concerns this "meta-knowledge" – this knowledge of not-knowing. What does it mean to know that we don't know? What is the nature of this knowledge, and what are its implications?

The truth is, there are things we know, and we know we know them – the known knows. There are things we know that we don't know – the known unknowns. And there are unknown unknowns; the things we do not yet know that we do not know.

My topic tonight concerns this "meta-knowledge" – this knowledge of not-knowing. What does it mean to know that we don't know? What is the nature of this knowledge, and what are its implications?

On this our teachers tell us different things? Permit me a brief account of my own experience. I came of age as an economist under the tutelage of Ludwig Lachmann. For him uncertainty was of the radical variety and it was lethal for the standard neoclassical framework. Unless economics as a discipline could figure out how to incorporate this real, this radical, uncertainty, it was doomed to irrelevance at best, and to the propagation of arrogantly administered disastrous economic policy at worst. Later, as I discovered the extensive work of Friederich Hayek, this approach was reinforced – though, of course, Lachmann and Hayek differ in some important respects. Hayek's Nobel prize lecture on the 'Pretense of Knowledge' is the culmination of a particular way of thinking about uncertainty.

In September of 1972, I arrived at the University of Chicago as a Ph.D. student. My first class in price theory was taught by Milton Friedman. Frank Knight had very recently passed away, and my introduction to Friedman featured a box of unsold copies of *Risk, Uncertainty, and Profit* that had been brought from Knight's office. These free copies were made available to us students on a first-come-first-served basis; and so it came

to pass that the copy of Knight's masterpiece that I have on my bookshelf is the one I received that day. But, more important for our subject tonight, is that, after the books were distributed, Friedman then presented us, his new students, with a short discourse about Knight's central idea. He explained that Knight had thought that there was a fundamental difference between risk and uncertainty, because the latter could not be cast in a probability framework. Knight makes a distinction between decision-making contexts in which the list of possible outcomes is known, and probabilities can be assigned to the elements of this list; and contexts in which the list of possible outcomes is unknown. It may be, of course, that though the list of outcomes is known, their probabilities of occurring are not. This is a sort-of intermediate position between risk and uncertainty – but is perhaps closer to risk than uncertainty because at least the decision-maker can guess at the probabilities. The case of unknown, unimagined outcomes, is categorically different. It is genuine uncertainty and it is ubiquitous. It is the basis for entrepreneurial action and for profit.

In what seems to me a momentous turn, Friedman thought, as he told us that day, that Knight was mistaken, because, since the advent of modern statistical theory including Bayesian theory, we now know that it's all a matter of how you set it up. Friedman suggested, and, of course this is the basis of the famous Friedman-Savage expected-utility choice theory, that all decisions were informed by a kind of subjective-probability analysis that allows the theorist to model decisions as if they were sampling from hypothetical probability distributions. The probabilities must add up to 100%, because whatever the decision-maker does not know about the possible outcomes can be allocated to a residual category which takes up the remaining, unallocated probability. It may be that this prior probability-distribution is not very informative – it may be a very diffuse prior distribution – but, in principle, says Friedman, there is no difference between risk and uncertainty.

What is being reflected here, in the different perspectives of Hayek and Friedman, is a difference in methodology that is wider than the Grand Canyon. Friedman is implementing the latter-day Chicago maxim, "if you can't measure, measure anyway" because if you can't measure you don't really know. Hayek would of course say that if you try to measure the unmeasurable you engage in a pretense of knowledge. Less elegantly, the proverbial drunk man looking for his keys under the lamppost, comes to mind.

Though, confused at the time, as might be expected of a very average, unsophisticated graduate student, I have now come to think that Friedman's approach is an instance of the wider "abuse of reason" that occupied Hayek for many decades. This refers to the presumption of economists, and some other social scientists, that what the physical sciences had taught us was that, everything is knowable, at least in principle, and that scientific progress consists of discovering those constant relationships among underlying variables, which correspond to real-world phenomena. In short, scientific progress consists of simply finding out how things work and we can do this by observing the world and its regularities.

Obviously, I don't have the time, nor the inclination, to examine this fundamental issue tonight. I will just say that the Friedman (mainstream) position has come under attack from many directions, and is something shared by most, if not all, of the various schools of heterodox economics. We social scientists are starting to get comfortable with the idea that there is a lot that is unknown and is likely to remain so for a while, as well as the much more revolutionary idea, that there is a lot that is unknowable. So before we begin in earnest we need to dispose of this obligatory, well-known distinction between risk and uncertainty, which, I believe to be very real. The well-defined outcome of a game of chance is fundamentally, categorically different from the multitude of unknown and unknowable outcomes that we face every day as part of the unfolding of time. Novelty, surprise, the unimaginable are real. And it is this type of uncertainty that I will be talking about.

Novelty, surprise, the unimaginable are real. And it is this type of uncertainty that I will be talking about.

So I suggest that the first thing we know about uncertainty, is that it is real and it is radical. But what does that mean exactly? Does it mean simply and only that we don't know what can and will happen? Does it mean that what will happen not yet determined? Or both? Is it just a matter of epistemology? Or is uncertainty a matter of the world itself, of ontology? On this one, I am going to punt. I don't know. I have no knowledge of quantum mechanics and I have no understanding of what it means to say that a particle has the potential to be a wave but that this is not yet determined. In economics, in the work of Hayek, Lachmann, Mises, Keynes, Schumpeter, Simon, Kirzner, Taleb and many others we have the implication that there are certain things that we cannot know because they are part of very complex processes. We may understand these processes, and we may recognize outcomes as part of a wide range of permissible and intelligible outcomes, but we cannot "know" these processes sufficiently to predict outcomes in any detail, for example by predicting the values of certain measurable variables. So, the question we are begging and ignoring is basically; is this complexity a matter of knowledge or is the world intrinsically unpredictable, uncomputable, undecidable. Such are the debates in the field of modern "complexity studies," and so I will leave it to them. What matters for us, it seems to me, is that uncertainty is real and we know this for sure.

What else do we know about uncertainty? Well we know that uncertainty is unavoidable. But it is not irremediable. The consequences of uncertainty can be mitigated. Most basically, there is insurance. For the life-insurance company, death is an instance of a class of homogeneous instances whose occurrence can be assigned a probability. The insurance company faces a situation akin to risk. For the individual, by contrast, death is a single unique event – a matter of extreme uncertainty. So the individual can leverage the difference to mitigate the consequences, at least for his heirs. In other ways, we act to minimize the consequences even of events that we

cannot imagine, except to say that they are “bad”. And I think here there is a distinction to be made between unknowable, unimaginable future events and knowable possible categories of consequences that can result. And this may give us substantial theoretical traction, as in the use of agent-based modelling that the advent of the computer age has made so attractive.

We know also that uncertainty is uncomfortable, well mostly. Sometimes we like it, like when we read a mystery novel, or watch a football game. We don’t want to know what is going to happen. That would spoil the experience for us. Also, if uncertainty implies that the outcome is likely to be good, or when it postpones the arrival of something bad, we may welcome uncertainty. But in many other respects, uncertainty is definitely unpleasant. It is responsible for the anxiety we feel. And we know that in some cases this can be debilitating. In other, less extreme, cases it can be very costly.

On a recent visit to Tbilisi, Georgia I saw an interesting strategy for reducing uncertainty. The traffic lights are equipped with timers – they count down the seconds till the next change. In this way the motorist knows exactly when the light is going to change. Apparently this has reduced road-rage and car accidents. Is this an unintended metaphor? All action is planned action, by definition. It presupposes the categories of means and ends and thus causality. Uncertainty tends to disrupt this connection, to make our planning more difficult and fill us with apprehension. This is no more true than in the context of economic policy. Providing “timers” – solid constraints and interpretable signals - for economic policy could reduce the uncertainty we feel about it.

We generate and experience a greater degree of complexity and uncertainty precisely because we can handle it. In many ways that is the story of the information age.

The words I quoted from Donald Rumsfeld were spoken in the context of assessing the consequences of going to war, and trying to make decisions about what to do next at each turn of events. It is but a graphic example of economic policy decision-making under real uncertainty. In this context, perhaps the most significant and startling implication of uncertainty is that it threatens the value-fact divide, the very possibility of *wertfrei* economics. Making informed policy-decisions in a world in which the consequences are radically uncertain, means that what you decide depends crucially on where you put the burden-of-proof – what you consider to be the default position, what you require to be disproved before action can be taken. The simplest, and most relevant example is the identification of a so-called “market-failure” prior to deciding that policy intervention is necessary. Will this imply proving that a market-failure exists, or, in other words, disproving the assumption that the market is efficient? Or will it imply, proving that the market is efficient and disproving the assumption that it is not? Whichever you choose, because we are dealing with real uncertainty and complex processes, it is probably impossible to disprove the null-hypothesis. Your choice, therefore, will depend

not on disinterested science, but, rather on which type of error you consider most egregious and wish to avoid, in other words on your values. The greater the degree of causal ambiguity, the greater the importance of the burden-of-proof. And uncertainty is all about causal ambiguity.

Uncertainty can mean not only not-knowing what is going to happen. It can also imply not knowing how to deal with what happens when it does, not knowing how to act or how to fix something or how make something you will need. So, much of our discussion about uncertainty is about mitigating and coping mechanisms. An interesting case is the case of novelty in economic life. Economic growth and development are very much about the discovery and introduction of new products and services, new production methods, new resources and materials, new modes of organization, etc. Gaining and maintaining a competitive advantage in the marketplace involves being innovative. How can you plan for this? Much research these days is about what kinds of organizations are most likely to be innovative. It's a big subject. I will say only that it is very much about the management of knowledge-generation within organizations in the same way that Hayek perceived of knowledge-generation in a decentralized market economy.

In fact, uncertainty is, from another systemic perspective, necessary, desirable and empowering. Without it life would be dull and it would be static. There would be no entrepreneur and there would be no profit, there would be no novelty, no need to figure out how to cooperate, so no Sesame Street moments, no mystery and, of course, no conferences like this. It would be a world completely different from our own. One of the thematic outcomes of my own work is the conviction that the world is becoming more uncertain all the time, even while our ability to deal with this uncertainty is improving dramatically. We generate and experience a greater degree of complexity and uncertainty precisely because we can handle it. In many ways that is the story of the information age.

But how, exactly, does this happen? I think the key is being able to predict, with sufficient degree of accuracy, what other people will do under various circumstances. As Adam Smith pointed out, each of us is dependent upon the cooperation of thousands of other people for even the most simple accoutrements of life. That is the miracle of the market. But the market would not work without a shared common language, without a firm shared basis in the law, in custom, in the norms we follow every day without even thinking about it. These social realities are what we often refer to as social institutions and they are what allow us to act in a world of radical uncertainty. So, I will end with a brief explanation of how I believe this occurs.

It's all a matter of inconsistent expectations which lead to uncertain and complex situations. As Hayek pointed out, the expectations of economic agents are 'data' for action. Expectations relating to uncertain future events imply the introduction of the unpredictable expectations of others upon who actions the success of our actions depends. Inconsistent expectations can mean inconsistent actions, disorder and disequilibrium. The new-classical counterrevolution was built on pointing out that expectations are best understood to be 'rational' – hence not all that unpredictable. And that debate is still not quite over. But I want to go in a different direction.

I suggest we need to unpack the concept of 'expectations' and ask the question 'expectations of what?' Obviously individuals have expectations about many different things. But, only some of these are likely to differ much across individuals. Those that form the basis of institutions, expectations about the 'rules of game' are likely to be very uniform across individuals. We may say that these expectations are informed by knowledge of the 'social laws' concerning how others will (almost) invariably behave in given situations. These expectations are likely to be very congruent. By contrast those expectations relating to the outcomes of introducing a new product, a new advertising approach, a new technology, a new competitive strategy, are not informed by such 'hard' knowledge. These are likely to be all over the place. Yet, such actions will not be deterred on account of the diffuseness of expectations and the uncertainty, the causal ambiguity that this implies. The entrepreneur acts precisely because he believes he is different and he knows better than the rest, absent which there would be no profit in it. Thus, somewhat paradoxically, predictability in one sphere of action is the necessary ingredient for coping with its absence (novelty) in another sphere. (Loasby 1991,

Uncertainty is real, it is unavoidable, but not irremediable, it is uncomfortable but it is necessary and it does not preclude us from acting. All of this we know for certain.

1994). We may invoke, as is often done, the analogy of a sports game, the fact that the outcome (the score, and the details of the action) cannot be predicted with any degree of certainty does not prevent the game from being played. On the contrary, it is this very unpredictability that adds to its attraction. What is predictable are the consequences of any infringement of the rules of the game, the fact that the losers will probably accept the result peacefully and so on. And it is this that allows the game to be played.

But whence the "rules of the game"? Another analogy - an individual walks across the mall full of snow and leaves a trail of footprints. Someone following him finds it helpful to walk in his footsteps (pun intended). Those who follow do the same and eventually they make a path through the snow that is of benefit to all who walk it (Kirzner 1992: Introduction). The original trailblazer is an unintentional institutional entrepreneur. The general principle here is the operation of network-effects - the more people use the network the greater the benefits for each (Liebowitz & Margolis 1994). Social institutions are complex phenomena and they are networks. A network of this kind is one in which the individuals who participate benefit from a shared (frequently tacit) understanding of how to proceed - a common standard (like a telephone technology, a language group, a religious group, a commonly accepted means of payment, a system of commercial laws, etc.). These 'external benefits' are the network effects that imply that there is feedback from individual action to other individuals, in the direction of producing uniform expectations regarding each other's behaviour (choices).

In this way, we can provide plausible choice-theoretic arguments showing how individuals perceive the benefits of choosing common modes of behaviour. In other words, social institutions are likely to emerge spontaneously from individual action and to grow spontaneously to an optimum size. And there are many examples of convergent social processes, perhaps the most familiar being the emergence of money (Menger 1871).

Uncertainty exists, we know that for certain, but we also know that it has many aspects. Experience tells us that while we cannot predict who will succeed and who will not, while we cannot predict which products will emerge and be popular, while we cannot foresee the nature of future technologies, living in liberal democracies we strongly believe that the process will be peaceful and will be orderly. The fruits of this dynamic process depend crucially on our (predictable) willingness to accept the consequences of its unpredictability. That willingness is the vital predictable part. Indeed, as with other such complex adaptive orders, what we have in the market process is the emergence of an unpredictable but intelligible 'order' and we are able to explain this process in a readily accessible and intuitive way deriving from our understanding of human action. Uncertainty is real, it is unavoidable, but not irremediable, it is uncomfortable but it is necessary and it does not preclude us from acting. All of this we know for certain.

www.li.com
www.prosperity.com



LEGATUM INSTITUTE
11 Charles Street
Mayfair
London W1J 5DW
United Kingdom

t: +44 (0) 20 7148 5400
f: +44 (0) 20 7148 5401

<http://twitter.com/LegatumInst>