

9 March 2018

Uncertainty, narrative economics, and the need for a diversity of modelling approaches

Richard Bronk

London School of Economics and Political Science

Understanding uncertainty in economics

Distinguish ‘uncertainty’ from calculable ‘risk’ (Knight, 1921)

Uncertainty: ‘The outstanding fact is the extreme precariousness of ... knowledge’ (Keynes, 1936); the problem of knowledge (Hayek, 1948)

Distinguish shortcomings of knowing agents, models or institutions (bounded rationality, information asymmetries and framing biases) **from ontological aspects of uncertainty:**

- **multifaceted nature of reality**
- **increasing returns and threshold effects**
- **innovation and novelty causing ontological indeterminacy**

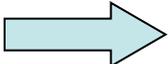
Ontological indeterminacy  **‘symmetrical ignorance’**

(Skidelsky, 2009) **and ‘fundamental uncertainty** (Dequech, 2001):

- **‘What does not yet exist cannot now be known’** (Shackle, 1972)

The future is not ‘statistical shadow of past’ (Davidson, 1996) but rather unknowable until critical choices and creative inventions made

More or less tractable knowledge problems

1. **Information asymmetries can be overcome with greater transparency**
 2. **Inability to make precise predictions in complex systems characterised by threshold effects and increasing returns can be offset by better use of simulations of impact of changes to key parameters**
 3. **Impossibility of unmediated access to multifaceted reality – the necessity for interpretation and folly of naïve empiricism – implies need to understand structuring role of models, conceptual grids etc**
-  **Diversity of modelling approaches helps overcome contingent biases in interpretation and framing of problems** (Bronk, 2009)

Innovation, indeterminacy and non-computability

Core link between uncertainty and innovation spelt out by Shackle (1979): ‘novelties of imagination ... injecting, in some respect *ex nihilo*, the unforeknowable arrangement of elements’

Novelty and imagining new options break previously stable regularities and make future partially undefinable and non-ergodic

First-order uncertainty implied by innovation compounded by second-order creative reactions of others (Bronk, 2011)

Schumpeter (1943): competition that counts comes from new products, technologies etc  ‘process of industrial mutation ... incessantly revolutionizes the economic structure *from within*’ – **an endogenous process of ‘Creative Destruction’**

Markose (2005): ‘competitive co-evolution’: ‘arms race of product innovation’: cf. viruses with ‘strategically induced’ mutation rates

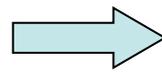
 ***Market is a ‘creative process’*** (Buchanan & Vanberg, 1991) – ***an indeterminate and self-organising system, with no predictable equilibrium***

Uncertainty and the contingency of expectations

If imagination is root cause of uncertain futures, it is also one of principal tools for coping with them (Bronk, 2011) – in form of ‘imaginaries’ or ‘fictional expectations’ (Beckert, 2016)

Whereas rational expectations hypothesis (REH) assumes expectations are ‘informed predictions of future events’ (Muth, 1961) since future is ergodic – its parameters predetermined – and competitive pressures eliminate systematic errors ...

in indeterminate competitive and innovative market systems, expectations cannot be anchored in a pre-existing future reality or objective probability functions derived from past

 ***Expectations and valuations are contingent ‘fictions’***

Shackle (1972): ‘valuation is expectation and expectation is imagination’

And, since expectations have important role in creating the future, they are self-referential (Keynes’ beauty contest) and the legitimate object of political debate, contestation and power

Decision-making *despite* uncertainty

Keynes (1936): ‘individual initiative will only be adequate when reasonable calculation is supplemented ... by animal spirits’

Calculative devices still perform useful role in uncertainty:

- **calculating** aspects of unknown future amenable to probabilities
- **simulating** complex interaction effects
- **diagnosing** newly emerging patterns and causal relationships
increasing returns and threshold effects
- social role in **justifying** and **legitimizing** action (Beckert and Bronk, 2018)

But beware dangers of ‘scientism’ (Hayek, 1952), **pretence of computability, and illusion of control**

Models, forecasts and narratives perform two other key roles:

- provide the **conviction** and **confidence** required for action
- **coordinate** the expectations, decisions and actions of multiple actors

In absence of convergence on uniquely rational expectations, market outcomes are determined by dominant narratives, models and new era stories

Role of narratives in conditions of uncertainty

Economic actors must have fictional expectations to give them the confidence to act and provide ‘interpretive frames to orient decision-making *despite* the incalculability of outcomes’ (Beckert, 2016)

In particular, narratives serve to:

- ‘keep ontological uncertainty at bay’ (Lane and Maxfield, 2005)
- provide meaning and ‘create commitment to act’ (Tuckett, 2011)
- integrate existing information and known causal mechanisms, assign roles to actors and objects, develop a ‘plot’ and provide motive to act (King, 2017; Beckert and Bronk, 2018)
- provide forceful fictions and blueprints that coordinate action

Because narratives are effective coordination devices and partially performative, they are instruments of power and control:

- central banks, for example, use narratives to ‘cajole expectations in a particular direction’ (Holmes, 2018)
- political and market power rests with those able to make their narratives and imaginaries count (Beckert, 2016)

NB Conversation is key means of discovering guiding narratives

Narrative economics: understanding market trends

Shiller (2017) call for ‘narrative economics’ to understand causal relationship between narratives and economic fluctuations:

- **narratives are subject to emotional contagion amenable to study with models borrowed from epidemiology**
- **‘new era stories’ become conventional frames involving group emotions at macro-level** (Akerlof and Shiller, 2009)
- **‘discourse analysis of news feeds’ to measure shifts in emotions registered in texts as tool for predicting market trends** (Tuckett, 2018)

Importance of ‘narrative revision’ (King, 2017) in explaining abrupt change in expectations and market instability

Grand narratives associated with socio-economic regimes (Boyer, 2018)

Emotional contagion, rhetoric, power, discourse of best practice and market pressures for ‘mimetic convergence’ (Orléan, 2014) lead to dominant narratives and widely shared models



analytical monocultures, shared blindspots and herding behaviour that can profoundly destabilize markets (Bronk, 2011)

NB Contrary to REH, homogenous expectations and shared analysis are a warning sign of instability

Framing effects: the epistemic danger of monocultures

All knowledge is partially dependent on conceptual frames we internalize rather than being mirror-like reflection of reality

Theoretical or conceptual frameworks distort as well as focus our vision, so that if we rely on *one* such lens (the apparently ‘best’ analytical framework) we are liable to error

➡ modelling monocultures imply limitations in our vision, **analytical blindspots** and inability to spot bias in our analysis

Policy or regulatory monocultures are dangerous because enforcement of homogenous practices and shared analytical routines leads to homogenization of how we *think*

➡ feedback loops between shared practice and thought

➡ epistemic closure prevents successful revision of ‘best practice’ (Bronk and Jacoby, 2016)

Cf. Kuhn (1996): cognitive lock-in implied by standardized practice implies need for traumatic crisis shifts in practice and vision

Lessons from biology and portfolio theory

Analogy of monocropping:

widespread use of single crop strain  **highly correlated vulnerability to novel threats**

Other lessons from biology:

- protective effect of genetic diversity
- importance of firebreaks and modularity in interconnected systems to limit contagion

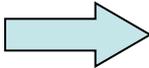
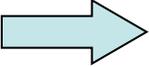
Lessons from portfolio theory: diversification as protection against uncertainty. But note:

- diversification only succeeds in reducing variability of returns and danger of unexpected wipeout if assets are negatively or weakly correlated with one another

 *protective effect of highly differentiated modelling and regulatory frameworks*

The innovative potential of a diversity of models

In conditions of uncertainty, diversity of models is key to ability to innovate and spot newly emerging problems:

- **repeated juxtaposition of alternative ways of thinking and acting or ‘dissonance’** (Stark, 2009)  **new insights through innovative recombinations of ideas**
 - **flexible use of different perspective or cognitive spectacles**  **disruption of established ways of looking at problems and ability to see different facets of a problem**
 - **Diamond (2011): ‘The complexity of the economy calls for the use of multiple models that address different aspects ...[M]odels are incomplete – indeed, that is what it means to be a model’**
 - **Each model is a diagnostic tool for teasing out certain systematic tendencies and spotting newly emerging patterns**
- ‘Disciplined eclecticism’ (Bronk, 2009): where choice of method is driven by prior multi-paradigm assessment of problem

Conclusion:

Capitalist economies are characterized by competitive innovation and hence are radically indeterminate

In such conditions of uncertainty, economic actors rely on a contingent combination of calculative devices, narratives and imaginaries to motivate and coordinate action

The contingency of expectations implies a contingency of valuation and the absence of a unique equilibrium

Markets depend on shared narratives to coordinate investment and instill confidence but on decentralized and diverse cognition to avoid errors and provide stability

Markets and economics work best at shifting boundary between shared mental models and cognitive dissonance

References (1)

- Akerlof, George A. and Robert J. Shiller. 2009.** *Animal Spirits: How Human Psychology Drives the Economy and Why It Matters*. Princeton University Press.
- Beckert, Jens. 2016.** *Imagined Futures: Fictional Expectations and Capitalist Dynamics*. Harvard University Press.
- Beckert, Jens and Richard Bronk (editors). 2018 (forthcoming).** *Uncertain Futures: Imaginaries, Narratives and Calculation in the Economy*. Oxford University Press.
- Boyer, Robert. 2018.** ‘Expectations, Narratives, and Socio-Economic Regimes’. In Beckert and Bronk (editors). 2018 forthcoming. *op cit*.
- Bronk, Richard. 2009.** *The Romantic Economist: Imagination in Economics*. Cambridge University Press.
- Bronk, Richard. 2011.** ‘Uncertainty, Modelling Monocultures and the Financial Crisis’. *Business Economist* 42.2.
- Bronk, Richard and Wade Jacoby. 2016.** ‘Uncertainty and the Dangers of Monocultures in Regulation, Analysis and Practice’. Max Planck Institute for the Study of Societies Discussion Paper 16/6.
http://www.mpifg.de/pu/dp_abstracts/dp16-6.asp
- Buchanan, James M., and Viktor J. Vanberg. 1991.** ‘The Market as Creative Process’. *Economics and Philosophy* 7 (2): pp. 167–186.
- Davidson, Paul. 1996.** ‘Reality and Economic Theory’. *Journal of Post Keynesian Economics*, 18.4.
- Dequech, David. 2001.** ‘Bounded Rationality, Institutions and Uncertainty’. *Journal of Economic Issues*, 35.4.
- Diamond, Peter. 2011.** ‘Unemployment, Vacancies, Wages’. *American Economic Review* 101 (4)
- Hayek, F.A. 1945.** ‘The Use of Knowledge in Society’. *American Economic Review* 35.4.
- Hayek, F.A. 1952 [2010].** ‘Scientism and the Study of Society’. In *The Collected Works of F. A. Hayek. Volume 13: Studies on the Abuse and Decline of Reason*, edited by Bruce Caldwell. Routledge.
- Holmes, Douglas R. 2018.** ‘A Tractable Future: Central Banks in Conversation with their Publics’. In Beckert and Bronk (editors). 2018 forthcoming. *op cit*.
- Lane, David A., and Robert R. Maxfield. 2005.** ‘Ontological Uncertainty and Innovation’. *Journal of Evolutionary Economics* 15 (1).
- Keynes, John Maynard. 1936.** *The General Theory of Employment, Interest and Money*. Macmillan.
- King, Mervyn. 2017.** *The End of Alchemy: Money, Banking and the Future of the Global Economy*. Abacus.
- Knight, Frank H. 1921.** *Risk, Uncertainty and Profit*. Houghton Mifflin.

References (2)

- Kuhn, Thomas S. 1996.** *The Structure of Scientific Revolutions*. 3rd ed.. University of Chicago Press.
- Markose, Sheri M. 2005.** ‘Computability and Evolutionary Complexity: Markets as Complex Adaptive Systems’. *The Economic Journal* 115.
- Muth, John F. 1961.** ‘Rational Expectations and the Theory of Price Movements’. *Econometrica* 29 (3).
- Orléan, André. 2014.** *The Empire of Value: A New Foundation for Economics*. MIT Press.
- Shackle, George. 1972 [1992].** *Epistemics and Economics: A Critique of Economic Doctrines*. Transaction Publishers.
- Shackle, George. 1979.** *Imagination and the Nature of Choice*. Edinburgh: Edinburgh University Press.
- Shiller, Robert J. 2017.** ‘Narrative Economics’. Cowles Foundation Discussion Paper, 2069, Yale University.
- Stark, David. 2009.** *The Sense of Dissonance: Accounts of Worth In Economic Life*. Princeton University Press.
- Tuckett, David. 2018.** ‘Conviction Narrartive Theory and Understanding Decision-Making in Economics and Finance’. In Beckert and Bronk (editors). 2018 forthcoming. *op cit*.