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Discussion:

Eric Beinhocker's THE ORIGIN OF WEALTH: EVOLUTION, COMPLEXITY AND THE RADICAL REMAKING OF ECONOMICS

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The special contributions of "The Origin of Wealth"

- Lucid and pertinent critique of traditional economics, drawing together many aspects of the alternatives (evolutionary, complex-system, Post Keynesian)

- A more scientific approach to use of data and theory in understanding economic behaviour, showing how the usual assumptions can mislead

- An emphasis on historical time, institutions ("social technologies"), and technological change ("evolving physical technologies")

"Complexity" as in "Complexity economics"

Is "complexity" a sufficient or necessary condition to distinguish a "radical remaking of economics"?

- **Not sufficient:** e.g. wave of innovation in credit markets (hedge funds, credit derivatives) driven by evolutionary forces (profits, growth) but becoming so complex as to lose transparency. Clearly this is complexity, but it can be explained in more conventional ways (Goodhart

- **Not necessary:** simple economic behaviours can be observed in animal systems e.g. coral-reef cleaning stations: market with boundaries, supplied by services of cleaning fish, demands, motivations, price (waiting time)

Other schools of thought:

- **agent-based modelling**
  - but is it more than a technique?

- **Evolutionary economics**
  - Insights and concepts from evolutionary theory (Nelson and Winter, 1982) are important in the book, and it fits well into this school, supplementing the evolutionary insights with those from complexity theory

- **Post Keynesian**

"Complexity economics" as a development of Post Keynesian Thought

- **Four fundamental Post Keynesian features (Holt, 2007) :**
  1. **Understanding the real world**
  2. **Economic activities take place in historical time, with path-dependence**
  3. **Uncertainty (versus probability calculations)**
  4. **Institutions**

What's missing?

- **Space: brings in system boundaries, externalities**
- **Money: more than another "social technology" it is a transforming social concept of wealth (but not wealth itself)**

My candidate for a name bringing in radical, Post Keynesian, complex systems, evolutionary economics: "new economics"

Holt, R. (2007) "What is Post Keynesian Economics?" in *Post Keynesian Macroeconomics: Essays in honour of Ingrid Rima*, edited by Mathew Forstater, Gary Mongiovi and Steven Pressman, Routledge.

Beinhocker's origin of wealth "fit order" (following Georgescu-Roegen)

"A pattern of matter, energy and or information has economic value if the following conditions are jointly met:"

1. Irreversibility
2. Entropy
3. Fitness

Problems with this definition

- Are 1. and 2. separable?
- "fitness" too often becomes true by definition
- Why did it take until the industrial revolution for wealth creation to explode? Accidental?
- Very general and physical, what about the very concept of "wealth"? Is it an aggregate stock measured by money? Or a collection of useful assets? Are matter and energy so important in the definition e.g. what about human labour, entrepreneurs, markets, money?

So what is the origin of wealth?

- **Human evolutionary drives: curiosity and desire for comfort, security and enjoyment i.e."fitness"**
- **Institutional evolution of money, accounting, limited liability and other "social technologies"**
- **Conditioned by entropy (=irreversibilities), economies of specialization and scale, limits on the environment's capacity to absorb and recycle waste safely**

Economic growth is an emergent property of the complex system that is the world economy linked with others:

- **increasing trade**
- **urbanization**
- **Networks**
- **information**

Climate change policy and the new economics

Critical differences	Traditional economics	New economics
ethics and society	**Utilitarian:** optimising rational self-interested individuals	**Observed:** satisficing conditional co-operators and altruistic punishers in evolving social groups
time and equilibrium	**Full employment forever:** higher GDP growth ruled out by assumption; no double dividend for policy	**Path-dependency:** many unused resources and new business plans in response to threats
uncertainty	**Normal:** distributions derived from the past; use of "certainty equivalence"	**Non-linear:** catastrophic surprises are inherent in complex systems
technology	**Exogenous:** CGE and growth models have no feedbacks via technology	**Induced:** by climate policies