Post-neoclassical Economics

A review and critique of its applicability to ICT

Alain Bourdeau de Fontenay (CITI)
Jonathan Liebenau (LSE & CITI)

The problem

- Perceived widening gap between mainstream economics & critical issues
- Reluctance of neoclassicists to accommodate new methods
- Newly articulated problems that are solvable with alternative approaches
objective

- Introduce heterodox approaches & illustrate potential roles in ICT economics
- Show intellectual heritage, inter-linkages
- Argue for their utility to address both longstanding and new problems

High switching cost

- But … not as high as people might think
- We will show what that cost is: what needs to be abandoned, what loss it represents, and what it costs to acquire the new approaches
Chronology

- “Classical”
  - Smith
- “Neoclassical”
  - Marshall
  - Knight, Sraffa & Young
- of which “mainstream economics”
  - Friedman, Becker
  - Stigler, Alchian

Post-neoclassical (or “heterodox”) economics

- Evolutionary economics (e.g., Nelson and Winter)
- New institutional economics (Williamson, Hart, Coase, North)
- Behavioral economics (Kahneman, Thaler, Frank, Ariely)
- Experimental economics (Vernon Smith, Ostrom, Ariely)
- Economic sociology (White, Fliegstein, Granovetter, Swedberg)
- Neuroeconomics (Camerer, Zak)
- Economic history (Chandler, Scranton)
- Complexity theory (Cherry and Bauer)
- Real options (Noam and Alleman)
Marshall & moves from classical to neoclassical

- Place, aggregation & industry structure
- Making economics a “science”
  - Fascination with mathematical economics
  - Discreet and abstracted analysis
  - Friedman: “truly important and significant hypotheses will be found to have ‘assumptions’ that are wildly inaccurate descriptive representations of reality, and, in general, the more significant the theory, the more unrealistic the assumptions” (1953)

Knight as pivotal figure

- Market clearing
- Uncertainty
- Theory of the firm
- Prices, information and competition

- Knight can be a bridge figure; lowering switching costs
Knight’s uncertainty

With uncertainty entirely absent, every individual being in possession of perfect knowledge of the situation, there would be no occasion for anything of the nature of responsible management or control of productive activity. Even marketing transactions in any realistic sense would not be found. The flow of raw materials and productive services to the consumer would be entirely automatic. (1921)

Knight’s uncertainty

- Methodological individualism: focus on individual's decision, not average or representative
- Human judgment as unit of analysis--idiosyncratic, not typical situations
- Link to market clearing:
  - Requires learning; historical time
  - Costly to communicate; must be translated into a probability-based market process (e.g. insurance)
  - Cannot be assumed to reach neoclassical market clearing equilibrium (except in the long-run)
Knight’s uncertainty as umbrella:

- Non-mainstream neoclassical models, e.g.,
  - Schumpeter's entrepreneur-based innovation
  - Externalities: Marshall, Young (and Romer)
  - Coase’s firm
- Post-neoclassical approaches, e.g.,
  - Evolutionary economics
  - New institutional economics (NIE)
  - Behavioral, experimental economics, neuroeconomics
  - Complexity theory
  - Real options
  - Incorporates Mandelbrot/Taleb “highly improbable”

Core neoclassical doctrine

- Rationality
- Self-interest
- Optimization
- Abstraction from context
- Externalities (and technology-focus)
- Allocation as a static problem
Bridging doctrines

- Uncertainty (from Knight)
- Problems of exogeneity (Sraffa)
- Where dynamic analysis fits (Knight)
- Transactions (Coase)
- Theory of the firm (Williamson)
- Innovation (Schumpeter)

Comparisons

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<th>Bridge</th>
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<tr>
<td>Rationality</td>
<td>Uncertainty (Knight)</td>
<td>Risk; “predictable irrationality”</td>
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<td>Context free</td>
<td>Sraffa &amp; questions of endogenity</td>
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“Lamp post” questions for ICT

- Pricing
- Industry structure models
- Interconnection
- Static financing

“Our” problems

- Networks
- Dynamic analysis of culture & institutions
- Technology as endogenous
- Markets & exchanges
  - Residual rights, vertical integration & competition
  - “New” theories of the firm
- Agency, moral hazard and other transaction problems; governance
  - Hold-up and access problems
Examples of previous uses

- New institutional economics (Coase): spectrum auctions
- Beh. & exp. econ. (Banks): spectrum auctions
- Behavioral economics (Kahneman & Tversky): some discrete choice demand analyses
- Behavioral & inst. economics (Noam): open spectrum access

Applications 1

- Real options (Alleman and Noam) and the incumbent’s costs
- New institutional economics (transaction costs) and regulated interconnection benchmark contracts
- Evolutionary economics (e.g. Henderson and Clark; Christensen and Bower; Bourdeau de Fontenay and Bourdeau de Fontenay) and peer-to-peer and file sharing
- Institutional economics (e.g. Noam) and complexity theory (Cherry) and common carriage; network neutrality
Applications 2

- Economic sociology (White): interconnection, peering, ICT competition
- Behavioral economics (Shiller) & Econ. of the highly improbable (Mandelbrot and Hudson; Taleb): investment; the dot com bubble
- Innovation economics/evolutionary econ. (Bourdeau de Fontenay & Liebenau; ITIF) regulation & judicial treatment of ICT competition
- New institutional economics – residual rights (Bourdeau de Fontenay): peer-to-peer

Applicability of alternatives

- P-2-P
- Infrastructure & exchange
- Regulation & market shaping
- Networks, scale & scope
Case 1
p-2-p

- Institutional issues: who is harmed by file exchange, and exactly how/how much?
- What alternative business models could work
- Inability to transform is common: changing ingrained behaviors & beliefs deserves lessons from evolutionary & institutional economics

“new” economic questions for p-2-p

- What is endogenous?
  - Technology?
  - Content?
  - Delivery mechanisms?
  - Pricing policies?
- Where to take *ceteris paribus*
  - Musicians’ income?
  - Producers’ &/or distributors’ income?
- Which institutions constitute the core?
- What should the economics of innovation be?
Case 2
infrastructure & exchange

- What constitutes “the infrastructure”?  
  - Backbone? Last mile? Facilities only?
- What constitutes “the market”?  
  - Trades in access & services  
  - Consumers & their behaviors
- Critical nodes, the control of knowledge & “too big to fail”  
  - Infrastructure as resource  
  - The value of sunk costs  
  - The status of hidden value (e.g. rights-of-way)

exchange

- Coase’s lighthouse as infrastructure
- Applied to municipal WiFi; digital divide argument  
  - Identifying need for infrastructure not unambiguous  
  - Various solutions to public facility provision  
  - Geography of local needs/overall transaction costs  
  - Which social goals merit infrastructure finance?
Case 3
regulation & market shaping

- Intermediate & two-sided markets
  - Institutions and behaviors shape the scope of an industry—old sectoral notions frequently transform
  - Confusions exogenous vs. endogenous
- Transitions (e.g. monopoly to “competition”)
- Gaming systems and exercising options

Case 4
networks, scale & scope
Summary

- In applying post-neoclassical approaches to ICT we see value in demonstrating bridges to neoclassical problem-setting and techniques
- Knight as pivotal figure
- New economics of ICT re-casts our agenda

discussion
An illustrative bibliography


