National Accounting and the Digital Economy
The Case of the National Broadband Network

Colin Clark Memorial Lecture, 14 November 2013

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Colin Clark

- Student of Beveridge, colleague of Keynes & Pigou

- Created first national accounts

- Pioneer of development economics

- 50-year association with Queensland

Why national accounts ?

- Keynesian macroeconomic management

- Policy analysis (beginning with wartime economic planning)

- Standard, though imperfect measure of economic wellbeing and progress

- GDP most useful for first, NNI for third

The industrial economy

- Emerged in C19, fully realized in C20

- Three stages of production

  - Primary: agriculture, forestry, mining

  - Secondary: manufacturing

  - Tertiary: transport, retail and wholesale trade, restaurants

- Key accounting problem: double counting

  - Solution: value-added

Household vs market

- Division between household and market production

  - Roughly, between men's and women's work

- Households

  - Serve as reserve pool of labour
  - Reproduce labour force

- Household production

  - Irrelevant for macro management
  - Can be drawn on for war economy
  - Very important in assessing welfare

Growth theory

* Central role of physical capital

    * produced means of production

* Exogenous technical progress

    * Solow residual

Problem areas

- Human services (health, education)

  - No measure of output

  - Solution outputs = inputs

- Capital gains

  - Central to financial sector, but no obvious final product

- Research and development

Criticisms

- GDP not a good welfare measure

    - Often solution is to use NNI

- Exclusion of household sector

    - Undervaluation of womens' work

- No accounting for depletion of natural resources

- Environmental pollution

    - More generally, externalities

The digital economy

- Computing and telecommunications key to innovation

  - Compare stagnation in transport, previously the leading sector

- The rise of the Internet

  - Developed as by-product of university research communications

  - Architecture depends mainly on open-source software

  - Value depends primarily on user-generated content: blogs, Twitter, Facebook

- Important but secondary role of physical infrastructure

  - Info superhighway metaphor both illuminating and misleading

Contribution to growth

- Currently accounting for 20-30 per cent of GDP growth

  - McKinsey, World Bank, OECD, Allens

- Implies more than 50 per cent of TFP growth

- Even larger impacts on household sector

- Cannot be treated as an anomaly

Information as a public good

- Non-rival

- Cumulative

- Exclusion difficult/inefficient

- 'Publicness' increases as dissemination costs fall

  - By many orders of magnitude in Internet era

Scale economies in information

- Cumulative and interactive nature of knowledge

- Implies potential for unlimited (qualitative) growth, even with finite resources

- Central difference between endogenous and classical/ exogenous growth theory

Irrelevance of C20 notion of value added

* No meaningful notion of stages of production

  * Even pure/applied research distinction less helpful than in past

* Relevant value addition is to stocks (knowledge, information, networks, human capital) not flows

Implications for national accounting

- GDP still useful for macroeconomic management, but should be renamed as something like 'market sector economic activity'

- Value-added model no longer useful for policy analysis in a digital economy

- Need to estimate stock of information capital, value it as an input to market sector production

- Suggests extension to human capital, natural capital

A new agenda for national accounts

* Separate macroeconomic management function of National Accounts from policy analysis/welfare

    * Stop headlining GDP!

* Estimate (and value?) hours of household work in digital economy

* Estimate (and value?) stock of information

The National Broadband Network

* A single large investment in increasing broadband speeds

* Largely a discrete choice

* Margins

  * Speed: FTTN vs FTTH

  * Network extent: threshold population density

Calls for ex ante assessment

- Problem 1: No ex ante way to assess demand

- Problem 2 (the big one): Market valuation and social value differ radically

NBN policy implications

- Pervasive network externalities

- Hence, social value exceeds individual WTP

- Policy conclusion: If NBN is profitable, it's probably too slow

Concluding comments

* Clark's construction of National Accounts a major contribution to, and documentation of, 20th century prosperity

* We need a similarly radical innovation for the 21st century

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