SEEA: THE INTERNATIONAL STANDARD FOR ENVIRONMENTAL-ECONOMIC ACCOUNTING

ALIGNING ECOSYSTEM ACCOUNTING AND GROWTH ACCOUNTING: BRINGING ECOSYSTEM SERVICES INTO MFP

Carl Obst
Honorary Fellow
Melbourne Sustainable Society Institute, University of Melbourne

Presentation to OECD Workshop on Environmentally adjusted MFP
Paris, 14-15 December, 2015
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- Ecosystem services and the ecosystem accounting model
- Incorporating ecosystem services in growth accounting
- Possible next steps
1. BACKGROUND
Development of the SEEA
2. Ecosystem Services and the Ecosystem Accounting Model
ECOSYSTEMS AS PART OF ENVIRONMENTAL ASSETS

- Dual perspective of the bio-physical environment: individual resources & ecosystem assets
CORE ECOSYSTEM ACCOUNTING MODEL

Individual & societal well-being

Benefits:
SNA & non-SNA

Ecosystem services

ECOSYSTEM ASSET
E.g. forest, wetland, coastal area, agricultural land

Human inputs (e.g. labour, produced assets)

Other ecosystem assets
ACCOUNTING IMPLICATIONS OF INCLUDING ECOSYSTEM SERVICES AND NON-SNA BENEFITS

- Measures of output, consumption and income larger
- Potential value of environmental assets increases
- Cost of capital – degradation – must take into account loss of future income from non-extractive activity; if asset declines in condition
- Recognise multiple users and income streams from a single asset
- Potential to extend measures of MFP
3. IMPLICATIONS AND CHALLENGES FOR MEASURING MFP
LIMITED CASE OF NON-RENEWABLE RESOURCES

- Physical flows (e.g. tonnes of coal) represent the capital service flows (see Brandt, Schreyer, Zipperer, 2013; Schreyer and Obst, 2015)

- Given assumptions on extraction rates and quantity of stock possible to estimate extraction profiles and asset lives

- Use standard approaches to estimating resource rent to partition gross operating surplus between produced and non-produced assets to establish cost share for MFP purposes
CASE OF DIRECT AGRICULTURAL INPUTS

- Examples of relevant ecosystem services
  - Water
  - Soil nutrients
  - Grass for livestock
  - Pollination

- Physical flows (e.g. m3 water) represent the capital service flows

- Might use standard approaches to estimating resource rent to partition gross operating surplus between produced and ecosystem assets to establish cost share
CASE OF “SINK” SERVICES USED BY AGRICULTURE

- Examples of relevant ecosystem services include
  - Absorption of excess nitrogen and phosphorous in river systems
  - Capture of GHG emissions in atmosphere

- Service flows will be related to the physical flows of residuals

- Generally, the value of these services not incorporated into market price of the output and hence resource rent based techniques inappropriate

- Challenge of incorporating / attributing the value of ecosystem degradation that may arise as a result of residual flows.

- Link to OECD EATFP (Brant, Schreyer, Zipperer 2014)
EXTENSION TO OTHER ECOSYSTEM SERVICES

- Going beyond “private” services
- Examples include
  - Carbon sequestration services
  - Cultural services, e.g. tourism related services

- Need to
  - incorporate additional valuation techniques for the measurement of non-market outputs
  - recognise multiple owners/beneficiaries and multiple types of capital services from single asset
4. Where To?
POSSIBLE NEXT STEPS

- Consider further the mathematics of extended growth accounting to natural capital and the flows of ecosystem services
- Assess the data availability, especially at finer spatial levels, including farm level
- Consider the potential non-market valuation approaches that would be consistent with price and quantity decompositions of standard capital accounting
THANK YOU
Links

- SEEA Central Framework

- SEEA Experimental Ecosystem Accounting