Valuing Forest Ecosystem Services

Findings and Challenges

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Background

• NEWFOREX “New Ways of Valuing Forest Externalities” - FP7 funded research project
  • Methods for valuing forest externalities that enable to handle jointly produced externalities in an integrated way.
  • Methodology for assessing the cost of provision of externalities.
  • Assess several market-based methods for enhancing the provision of forest externalities, like payment schemes, certification or (re-)definition of property rights.
  • Disseminate and communicate the improvements and gains in knowledge about the methods for valuation and marketing of forest externalities.
A. Win-lose scenario

B. Conservation incentive scenario

Q 1: Most profitable land use (e.g. deforestation for farming)
Q 2: Negative externalities caused by Q1 (off-farm ES losses)
Q 3: Compensation paid by external ES users if Q3 < Q2 and Q3+Q4 > Q1
Q 4: Service-friendly land use (e.g. forest management, pure protection)

Landowner surplus = Q4 + Q3 - Q1

ES user surplus = Q2 - Q3

Source: Pagiola and Platais (2007)
Quantification of and goal setting for non-marketed forest ecosystem services (ES)

• Any policy targeting ES should have clear and measurable goals for ES quantities at least for two reasons:
  • to ensure that what is being delivered is what has value and
  • to allow society to monitor the efficiency of policies
• In goal setting, it should be remembered that any policy will likely affect several ES and therefore multiple policies may be needed for balance
• Still remains a challenge to understand functioning of ecosystems and provision of ES (interrelations, role of species, climate change,...)
The valuation of non-marketed forest ecosystem services (ES)

- based on the concept of **economic value** – it stresses values that bring benefits to human beings, either directly or indirectly (preference based).

- relies on the notion of **willingness to pay** (WTP) - the maximum amount of other goods (e.g. money) an individual is willing to give up in order to have a particular good.

- **economic value** of a good to an individual is reflected in the willingness to pay of the individual for that good.

- focuses on assessing the value of **small-scale changes** (marginal changes) in ecosystem services resulting from management decisions or other human actions.
The valuation of non-marketed forest ecosystem services (ES)

• raise awareness by demonstrating the importance of forest conservation and sustainable use.
• determine damages of forests loss
• land use decisions
• maximize the environmental benefits per monetary unit spent
• encourage innovative forest goods and services (e.g. certification)
• justify and decide how to allocate public spending on conservation, preservation, or restoration initiatives.
• consider public’s values, and encourage public participation and support for environmental initiatives.
• compare the benefits and costs of different projects or programs.
The valuation of non-marketed forest ecosystem services (ES)

• Using improved methods we add documentation for the impressive value of non-marketed forest ecosystem services – yet we argue that to make valuation studies policy relevant, focus should turn away from total economic values to value distributions

• Environmental policies have distributional effects: Some people win more than others – and others again may lose. We demonstrate with case studies that these differences are not trivial and likely to be highly policy relevant

• Identifying who values ES how much can inform policy instrument design in order to gain legitimacy and direct costs to where values are harvested.
The cost of provision for non-marketed forest ecosystem services (ES)

- the benefits of applying multiple methods for assessing the cost of provision – capital budgeting techniques widely used can be further informed by methods taking forest owner perceptions into account
- European private forest owners are generally positive towards the provision of ES from their forests
- differences in forest owner objectives spill over to major heterogeneity their perceived cost of providing further ecosystem services.
- options for improved cost efficient policy designs
Economic Instruments non-marketed forest ecosystem services (ES)

- many formal aspects of contract matter and that loss of decision right is costly, thus instruments should be designed to limit these where possible and carefully consider aspects like exit options, time frame etc
- participation rates in voluntary economic instruments increase when transactions costs can be controlled, e.g. larger forest properties, higher educated and forest owners with experience from other instruments are more likely to enter a new instrument
- forest extension companies can be instrumental in reducing transactions costs and stimulate participation from owners who face steep transaction costs
Economic Instruments non-marketed forest ecosystem services (ES)

- ES targeted instruments are more likely to attract forest owners if they are aligned with forest owner values – for example instruments requiring action (infrastructure, establishing new nature, restoration) are seen more positive than instruments requiring inaction (passive conservation) – policy instruments can be designed to benefit from this.

- The majority of citizens of several European countries support the view that cost of ES provision should in general be carried by society or identified users directly – and not the forest owners. This shows widespread public support for economic instruments.
Thank you!