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Abstract

Keywords

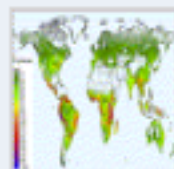
1. Introduction

2. Ecosystem services and economic activity

2.1. How do ecosystem services contribute to traditional measures of economic activity?

2.2. An empirical measure of ecosystem services

3. Methodology



3.1. Panel methodology

3.2. Cointegration and error correction

3.3. Sensitivity analyses

4. Results

4.1. Panel estimation

 Table 1

4.2. Cointegration and error correction

 Table 2

4.3. Sensitivity analyses

5. Discussion

5.1. What does the relationship between net primary production and GDP measure?

5.2. A shadow price for net primary production



5.3. Economic growth: substituting capital for environmental services

ANALYSIS

## Valuing ecosystem services: A shadow price for net primary production

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### Abstract

We analyze the contribution of ecosystem services to GDP and use this contribution to calculate an empirical price for ecosystem services. Net primary production is used as a proxy for ecosystem services and, along with capital and labor, is used to estimate a Cobb Douglas production function from an international panel. A positive output elasticity for net primary production probably measures both marketed and nonmarketed contributions of ecosystems services. The production function is used to calculate the marginal product of net primary production, which is the shadow price for ecosystem services. The shadow price generally is greatest for developed nations, which have larger technical scalars and use less net primary production per unit output. The rate of technical substitution indicates that the quantity of capital needed to replace a unit of net primary production tends to increase with economic development, and this rate of replacement may ultimately constrain economic growth.

### Keywords

Ecosystem valuation; Net primary Production; Ecosystem services