Payment for Environmental Services Have Only Modest Effects on Deforestation

What is the aim of this review?
This Campbell systematic review examines the effects of Payment for Environmental Services (PES) programmes on deforestation and poverty, and whether environmental and poverty reduction goals conflict with one another. The review summarizes evidence from 11 studies covering six PES programmes in four countries.

Payment for Environmental Services (PES) programmes have only modest effects on deforestation and are not cost-effective. PES programmes are more likely to attract wealthier farmers, and are less effective in poor areas.

What is the review about?
Forests store carbon, which helps mitigate the effect of carbon emissions. However, the amount of forest cover is declining at a rate of over seven million hectares a year.

Payment for environmental services are voluntary contracts to supply an environmental service in exchange for payment. In this review, the service being paid for is the maintenance or rehabilitation of natural forests.

The review examines how PES programmes affect deforestation, factors affecting programme effectiveness, and whether PES should also aim to reduce poverty.

Which studies are included in this review?
The review includes evaluations of PES programmes which report deforestation and poverty outcomes compared to outcomes in a ‘non-PES’ comparison group. Eleven studies are included, covering six programmes in four countries: Costa Rica, China, Mexico, and Mozambique. Nine studies provide evidence on environmental effects, and two on poverty effects. None of the studies report both poverty and environmental outcomes.

The studies all have methodological weaknesses. None use random assignment. Therefore, the effect of PES on deforestation may be over-estimated because: (1) PES programmes may be applied to areas of land that landowners do not intend to deforest, and (2) landowners may ‘compensate’ by cutting down trees on lands that are not included in PES programmes.
How effective are PES programmes?
There is evidence of moderate quality which suggests that PES programmes only have a modest effect on deforestation. On average the rate of deforestation is reduced by 0.21 per cent per year. This very modest impact means that almost all the land for which PES payments were made would have remained forested even in the absence of payments. PES may be slightly more effective in increasing forest cover than it is at preventing deforestation.

PES improved participating households’ incomes by 4 per cent in Mozambique, and by 14 per cent in China. However, PES programmes are (1) more likely to benefit wealthier landowners, and (2) less effective in poor areas. Participation by the poor is constrained by documentary requirements, high transaction costs, and lack of understanding of programmes.

One study measured impact separately in poorer areas, reporting no effect on deforestation in those areas. This one finding suggests there may be a trade-off between conservation and poverty reduction efforts, but more evidence is needed.

What determines how well PES programmes work?
A number of factors affect how well PES programmes work:

- Attempts to distribute resources fairly divert programme resources away from areas most at risk from deforestation.
- Systems of monitoring deforestation may overestimate compliance and effectiveness.
- Programme effectiveness may be undermined by corruption, for example by landowner organizations lobbying for higher payments.

What do the findings of this review mean?
The modest effectiveness of PES programmes means that they are not cost-effective. Relative to the extensive investment to measure forest conditions, efforts to assess the effects of PES programmes on deforestation and poverty are limited and methodologically weak. Funders wanting to support cost-effective measures to reduce deforestation should incorporate high-quality evaluation designs into future PES programmes, preferably with random assignment.

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