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Economy-wide impacts of REDD when there is political influence

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ABSTRACT

National-level strategies for reducing emissions from deforestation and degradation (REDD), financed by international transfers, have begun to emerge. A three-sector model is developed to explore the economy-wide effects of two policies implemented by a government participating in REDD that differ in how they bring together incentives and benefit sharing: an incentive payment scheme where these are intrinsically linked and taxes where they are separated. Two sectors utilise forest as an input to production, one in which forest is substitutable for labour, producing a carbon externality, and one in which forest and labour are complements and where forest is used sustainably. Two important effects determine model outcomes. First, the government factors in general equilibrium effects when determining the efficient payment level. This implies that the level of international transfers is not fully passed through to the forest-using sectors. Second, even though the sustainable sector receives no incentive payment it can increase in size through the effect of REDD payments on markets. With political influence, where incentives and benefit sharing are linked the forest-using sectors may lobby for lower payment rates for themselves in order to create a larger international transfer. Where there is a separation between incentives and benefit-sharing this effect disappears. The findings indicate that REDD may be less cost-effective than envisioned at the international level.

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1. Introduction

Reducing emissions from deforestation and forest degradation (REDD) in tropical countries could address up to a fifth of global, anthropogenic greenhouse gas emissions (Van der Werf et al., 2009). Since Stern (2006), REDD has emerged as a potentially cost-effective strategy for reducing emissions, an argument based on comparing the marginal abatement costs of different mitigation strategies. Despite on-going uncertainty regarding the design of an international REDD mechanism under the United Nations Framework Convention on Climate Change (UNFCCC), national-level strategies and policy frameworks are likely to play an important role (Wertz-Kanounnikoff and Angelsen, 2009). Indeed, countries are already developing strategies that include REDD. For example, Guyana has instituted its Low Carbon Development Strategy, and the World Bank's Forest Carbon Partnership Facility (FCPF) is involved in developing similar strategies in a number of countries.

Through such strategies, governments take on responsibility for attracting finance, designing and implementing policies for achieving REDD, distributing benefits, and setting baselines for emissions reductions. Thus, they allow for the possibility of an economy-wide approach to REDD with a single baseline for emissions across all relevant, forest-using sectors.[1] Yet in many tropical countries these sectors are often characterised by weak governance and endemic rent seeking (Amacher, 2006; Koyuncu and Yilmaz, 2008; Palmer, 2005). Introducing international REDD finance could potentially redirect rent-seeking efforts towards the capture of any benefits that REDD may bring (see Myers, 2007).

In this paper, we develop a model of a small open economy in order to examine the impacts of two policy instruments implemented through a national REDD strategy: incentive payments (or payments of environmental services) along with input and output taxes.[2] This serves to address the following three questions. First, what are the economy-wide, general equilibrium effects of implementing REDD? Second, how might these affect government policies for achieving REDD? And third, how do these effects change with political influence from sectors affected by REDD?

By shifting labour, capital and other inputs between sectors – via changes in relative prices – REDD is likely to have broad economic impacts. For example, REDD may be used to encourage the growth of sectors that are less directly dependent on forest as an input to production. However, input and output prices and the relative profitability of all sectors may also change. Recent research has begun to address these potential impacts. For example, Ibarraran and Boyd (2010) examined the multiplier and distributional effects of REDD policies in Mexico using a computable general equilibrium model. Opening the general equilibrium 'black box', Ollivier (2012) developed a growth model with land-conversion dynamics in a two-sector economy and assessed the long-term impacts of an international REDD transfer. Our model of a multi-sector economy also adopts a national REDD strategy financed by an international transfer. Yet, we use it in order to examine how different policies might affect different sectors, including their use of forest. In this respect, we follow earlier work concerned with the impacts of policies on deforestation in a general equilibrium setting (e.g. Deacon, 1995), as well as research concerned with the general equilibrium effects of other, climate change-related policies (e.g. Rivers, 2013; Aronsson et al., 2010).

We depart from previous work on the general equilibrium effects of REDD by considering the potential for political influence on REDD policy making. Specifically, we adopt the common-agency model of Grossman and Helpman (1994), who used it to investigate the impact of lobby group influence on trade policy. Subsequently, it has been applied to examine the role of political influence in public policy-making, including environmental taxes and subsidies (Fredriksson, 1997), environmental protection (Schleich, 1997; Yu, 2005), and forest conservation (Eerola, 2004; Jussila, 2003). To our knowledge, our paper is the first to apply it to an international-level incentive like REDD. Previous research illustrated how policies such as taxes shift the relative prices of inputs or outputs, returning

[1] This could account for the release of carbon embodied in biomass even if it 'leaked' from one sector to another as a consequence of policy implementation (see Murray, 2009).

[2] Policy options for REDD mirror those of forest conservation more generally (see, for example, Angelsen, 2008, 2009, 2010; Daviet, 2009; Palmer, 2011; Pfaff et al., 2010). Incentive payments schemes have been central to REDD policy discussions in recent years.