



Analysis

Payment for Environmental “Self-Service”: Exploring the Links Between Farmers' Motivation and Additionality in a Conservation Incentive Programme in the Bolivian Andes

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ABSTRACT

Neoclassical economic interpretations of Payment for Environmental Services (PES), which assume that participants weigh up costs and benefits, are making room for more complex analyses. However, there is still little evidence of how PES programmes interact with existing motivations to conserve, the extent to which funded conservation is additional, and the likely permanence of changes. We categorized the outcome of contracts aiming to reduce cattle grazing in riparian forest ($n = 428$) and deforestation ($n = 912$) by Bolivian farmers in terms of whether they were unsuitable, non-compliant, non-additional, or additional (the holy grail of PES programmes) and explored the relationship between farmers' reported motivations and the extent to which the conservation funded was additional. Up to 39% of contracts to exclude cattle, and 14% to prevent deforestation appear to be additional. Where participation is motivated by the instrumental values of nature (such as provision of clean water) contracts to exclude cattle from riparian forest are more likely to represent additional conservation. We suggest that the programme is partly acting as what we term ‘payment for environmental self-service’; i.e. the external incentives enable changes in behaviour motivated by farmers' perceptions of environmental benefits they receive from the management changes incentivized.

1. Introduction

Payments for Environmental Services (or the equivalent term Payment for Ecosystem Services; Wunder, 2015) (PES) have been presented as an efficient and effective approach to conservation (Engel and Palmer, 2008; Wunder et al., 2008) and are widely promoted and implemented (Ezzine-de-Blas et al., 2016; Grima et al., 2016). However there has been growing criticism that such market-mechanisms for conservation can result in unhelpful commodification of nature and can lead to crowding-out of existing motivations to conserve (Bowles, 2008; Rode et al., 2015). These criticisms have resulted in increasing academic interest in land users' motivations to participate in conservation programmes and the role that conditional positive incentives such as those provided by PES programmes can play (Moros et al., 2017; Muradian et al., 2010). Researchers have long been concerned about the additionality of conservation funded through PES (Pattanayak et al., 2010; Sánchez-Azofeifa et al., 2007) and there is evidence that many programmes pay for conservation that would have happened anyway rather than incentivizing real change in land use (Börner et al., 2017; Daniels et al., 2010; García-Amado et al., 2013). Where changes are

made, there are concerns about the permanence of such changes after the programme ends (Engel et al., 2008; Pagiola et al., 2016; Tacconi et al., 2013; Börner et al., 2017). Despite interest in motivations to participate in PES and awareness of the importance of additionality and permanence to PES effectiveness, there is little research explicitly linking the motivation of those participating in a PES programme and the additionality or permanence of the conservation funded.

The factors influencing household participation in a PES project were first considered in detail by Pagiola and colleagues in 2005. Their model (Pagiola et al., 2005) emphasises that for a household to participate they must first be eligible (for example by owning land which meets the PES criteria), they must want to participate (which the authors assume is primarily based on the profitability of the PES programme), and they must be able to participate (which will be affected by factors such as their level of experience and the technical difficulty of the practices which PES seeks to incentivize). However as the way PES is conceptualized has shifted from its initial roots in neoclassical economics to more explicitly acknowledging the importance of the social context of decisions to participate (Gómez-Baggethun et al., 2009; McAfee and Shapiro, 2010; Muradian et al., 2010); motivation

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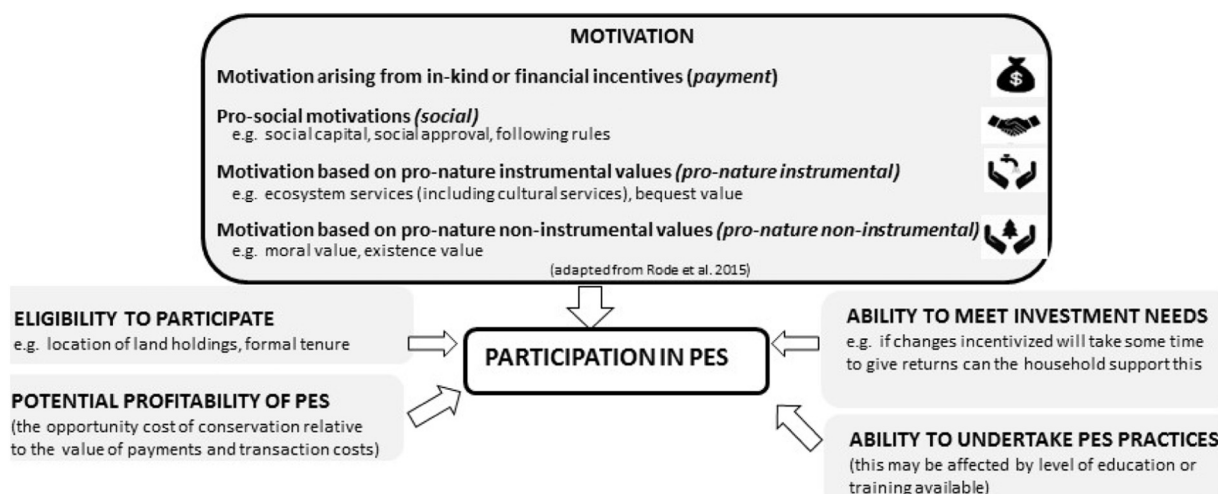


Fig. 1. Conceptual framework highlighting the factors influencing participation in a PES programme (based on Pagiola et al., 2005) with particular focus on the role of different categories of motivation.

(Adapted from Rode et al., 2015).

deserves a central role in the model explaining participation in PES (Fig. 1). Motivation can be defined as ‘to be moved to do something’ (Ryan and Deci, 2000). The literature demonstrates that while payments do play a role in motivating behaviour change in PES, pro-social and pro-nature motivations are also important (Rode et al., 2015).

Pro-social motivations include possible gains in social capital through cooperation with others (García-Amado et al., 2013) and there is evidence that these influence people's willingness to engage with conservation (D'Adda, 2011). People may also be motivated to join a programme due to the prevailing rules or social norms (Corbera et al., 2009; Vatn, 2010). For example; once participants have signed up to a PES, the rules which underpin the contract may be part of the motivation to comply and enact the conservation (Kolinjivadi et al., 2014). Pro-nature motivations include those based both on the instrumental and non-instrumental values of nature (Rode et al., 2015). People may participate in a PES programme because of perceived instrumental benefits they may receive from the environmental services (whether provisioning, supporting, regulating or cultural services) now or in the future (bequest value; Fisher, 2012; García-Amado et al., 2013). For example, farmers in a PES programme in Colombia were more willing to participate if they perceived long term environmental benefits to themselves (Hayes, 2012). Finally, some people will participate because they have a moral commitment to nature conservation or value the very existence of the relevant ecosystem (Kenter et al., 2015; Luck et al., 2012; Muradian, 2013; Van Hecken and Bastianensen, 2010); such motivations are based on non-instrumental values of nature (Fig. 1).

Payments for Watershed Services are a category of PES programmes that involve a relationship between multiple users of the same watershed. Payment for watershed services programmes were initially conceptualized as downstream users incentivising sustainable land use practices upstream to secure their access to water quality and quantity (Wunder and Albán, 2008). In practice, payments for watershed services are very diverse, embedded in institutional relations among multiple private and public stakeholders, and use a range of financial and non-financial incentives (Boisvert et al., 2013; Martin-Ortega et al., 2013). In 2003, a Bolivian NGO, *Fundación Natura Bolivia (Natura)*, launched a form of Payment for Watershed Services in the Bolivian highlands to establish reciprocal relationships between environmental service users (Municipal Governments, Water Cooperatives and international donors) and upstream farmers and cattle-owners (Asquith et al., 2008). The programme, now known as *Watershared*, has never used the terminology of market transactions but refers to the contracts as Reciprocal Watershed Agreements (*Acuerdos Recíprocos por Agua*).

Watershared aims to conserve biodiversity and improve water quality by incentivising farmers to prevent forest conversion and exclude cattle from riparian forest. > 210,000 ha belonging to 4500 families are under *Watershared* agreements (Asquith, 2016).

We evaluate the role played by different categories of motivation (motivation based on payments, pro-social motivations, and motivations based on pro-nature instrumental and pro-nature non-instrumental values) in incentivizing farmers' participation in *Watershared*, the extent to which farmers acting on different reported motivations provide additional conservation, and the likely permanence of this conservation when contracts expire. We argue that the programme is partly acting as what we term ‘payment for environmental self-service’ in that the external incentives enable changes in behaviour motivated by farmers' perceptions of environmental benefits they and their community receive from the management changes incentivized. In other words, pro-nature instrumental motivations are important in motivating behaviour change.

2. Methods

2.1. Description of the Study Site

The Rio Grande catchment in the eastern Bolivian Andes covers 57'000 km². Although the area has quite high average rainfall (nearly 900 mm across the area), water is a limiting factor for agriculture in the dry season. Most people rely on unimproved water sources often taken from outtakes in the forest. In order to protect the watershed, and also the local forests which are highly biodiverse (Myers et al., 2000) the Santa Cruz government created the Río Grande Valles Cruceños Natural Integrated Management Area (Spanish acronym ANMI-VG-RC) in 2007 (Decree N°059/07). In 2011, a local NGO, *Fundación Natura Bolivia (Natura)*, started to apply the *Watershared* programme in the area (Fig. 2).

The *Watershared* programme provides in kind incentives (a free choice of beehives, fruit seedlings, irrigation tubing, construction material, and barbed wire) to upstream farmers who commit to following certain land use restrictions on contracted land. There are three levels of contract which vary in terms of what land is eligible and what restrictions are placed on land owners (see summary in the appendix A). For a level 1 contract (which covers only forested land, within 100 m of a river), farmers receive 100 USD worth of in-kind incentives (at market value) at signing plus \$10 worth per hectare annually. No cultivation is permitted within the contracted area and cattle must be excluded. Level

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