



Paying for environmental services: Determining recognized participation under common property in a peri-urban context



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ABSTRACT

This paper analyzes payment for environmental services (PES) policies under a common property regime in Mexico City. Econometric analysis of field data collected in an agrarian community shows that only a limited number of community members recognize their active involvement in the national payment scheme, which demonstrates that the condition of voluntary participation, as stipulated by the program, is likely to be flawed in cases of collective property. We suggest that institutional arrangements, human capacity and capability, and perception of the natural resource context significantly influence recognized participation in PES programs.

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1. Introduction

Payment for environmental services (PES) is a widely discussed but still innovative economic policy instrument designed to provide incentives and adequately remunerate positive externalities (Engel et al., 2008; Grieg-Gran et al., 2005; Robertson and Wunder, 2005; Wunder, 2005). However, policy-makers have had to confront context-specific challenges to make PES fully self-sustaining. Although much still needs to be learned, there are few examples of effectively applied PES (Engel et al., 2008; Speranza and van de Sand, 2010; Wunder et al., 2008). Consequently, the analysis of diverse contexts where PES is either already or potentially applied is warranted. For instance, despite the growing importance of the rural-urban interface with respect to environmental policies (Gutman, 2007; Niemelä et al., 2010), few analyses have been carried out on PES in peri-urban¹ areas (e.g., Huang et al., 2011; Landell-Mills and Porras, 2002; Mayrand and Paquin, 2004). Instead, most studies deal with rural-based programs (e.g., Engel et al., 2008; Wunder et al., 2008). However, trends in population growth, rural exodus and mega-city growth highlight the need for a new rural-urban compact (Gutman, 2007), recognizing that urban inhabitants benefit the most from environmental services (ES) (Bolund and Hunhammar, 1999). Further studies also might shed light on what

would motivate ES providers to get actively involved in voluntary conservation schemes such as PES.

An illustrative example of developments in rural-urban compacts in Mexico, the second Latin American country after Costa Rica (Pagiola, 2008) to introduce a national PES program in 2003 (Muñoz-Piña et al., 2008). The program was initially set up to assure water provision, which had become an increasingly scarce resource in the country and especially in Mexico City. This mega-city of approximately 9 million inhabitants (greater Mexico City, which includes neighboring areas, is approximately 20 million) depends heavily on the water supply from aquifers, whose main recharge areas are located in the surrounding mountains. However, expansion of the city's infrastructure exerts increasing pressure on these peri-urban areas, and the continuous ES provisions have become critical for the city's future (Pérez Campuzano et al., 2011; Schteingart and Salazar, 2005). One particular feature of the peri-urban catchment is that it is inhabited by communities that hold legal land-use rights. Hence, a community inscribed in the national PES program participates collectively with all of its members. However, although community members have equal rights of co-determination and land use, only a limited number of members recognize their active involvement in the program. This is an interesting issue with strong policy implications because stakeholders' perceptions and attitudes are paramount in achieving successful policies such as PES (Coulibaly-Lingani et al., 2011; Wossink and van Wenum, 2003). We found that within a common property regime, considerable heterogeneity exists. It is of particular concern, therefore, whether the group recognizing its PES participation is likely to maintain or improve ES provisions. This concern is not

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¹ The peri-urban area is the transition zone between urban centers and rural areas.

confirmed by our results because community members actively taking advantage of the commons by working or cultivating a land parcel (and thus directly targeted by PES participation) are less likely to recognize that such a program is applied on the commons.

While most studies of PES participation deal with individual landholders in rural settings (e.g., Zbinden and Lee, 2005), only a few studies have been performed in a peri-urban context where ES providers own and manage the natural resource collectively. Furthermore, although research identifies a number of variables that theoretically determine participation in a PES program (Engel et al., 2008; Pagiola et al., 2005; Zbinden and Lee, 2005), to our knowledge no study refers to the case of a common property regime and, more specifically, addresses whether a member of a recipient community in Mexico recognizes its PES participation. Analyzing community members' recognition of a PES program indicates whether voluntary participation resulted in active involvement of the entire community. The distinction between formal participation and actual recognition among community members is of special interest in contexts where the land is owned and managed collectively. Thus, this article is interested in addressing the following research question: What are the socio-economic variables that influence community members' recognition of participation in a PES program within a peri-urban context of common property?

The rest of this paper is organized into four sections. First, brief descriptions of the Mexican PES scheme and presentations on the area of study are given. Second, methods used to identify variables likely to explain the recognition of program participation through an econometric model are presented. Third, results from a logit model are laid out. Finally, a discussion and policy implications for PES design are developed.

2. Payments for environmental services in Mexico

2.1. Background to PES programs

In response to deforestation, forest degradation and increasing water scarcity in specific river basins, the Mexican government established a national program of Payments for Hydrological Services (PSAH in Spanish) in 2003 (Muñoz-Piña et al., 2008). The PSAH program aimed to strengthen forest conservation and management practices across the country, paying particular attention to forested areas in critical watersheds facing a high deforestation risk (Muñoz-Piña et al., 2008). The government further acknowledged the importance of other ES programs by additionally establishing Payments for Carbon, Biodiversity and Agro-forestry Services (PSA-CABSA in Spanish) in 2004. In 2006, PSAH and PSA-CABSA were merged into a single policy framework known as Program of Payments for Environmental Services (PSA in Spanish) in which hydrological, biodiversity, carbon and agro-forestry services maintained their own procedural rules (Corbera et al., 2009).

Mexico's PES program is one of the largest in the world, managed by the National Forestry Commission (CONAFOR in Spanish) and covers up to 2.27 million ha in 2009 (Alix-García et al., 2010). The CONAFOR acts as the ES buyer on behalf of society. The most common ES sellers are agrarian communities and ejidos,² and to a much lesser degree, private landowners (Muñoz-Piña et al., 2008). The predominance of rural communities as service providers is a key characteristic of Mexico's PES program, in contrast to similar initiatives in Latin America, as is the fact that approximately 70% of the country's forests are owned by these communities (Bray and Merino-Pérez, 2002; Bray and Merino Pérez, 2004). These are, in turn, made up of agrarian

communities and ejidos, which are a product of the Mexican agrarian revolution of the first half of the 20th century. In succinct terms, they are a common property regime in which a group of families has the right to use farming lands while sharing access, withdrawal, management and exclusion rights in grazing and forest areas. Community authorities and an assembly of the principal right-holders decide upon and govern the use of the commons, including issues such as timber extraction quotas, access rules for villagers who do not hold formal land rights and the benefit-sharing system when forest concessionaries or community forestry enterprises also make use of the forest commons.

Given general interest in understanding the contexts in which the PES program works, an increasing number of scientific studies have been published in recent years. Among these publications have been papers addressing the issue of non-economic value-added factors that explain active involvement. For example, Kosoy et al. (2008) study four cases of PES in Mexican ejidos around the rural area of the Lacandon Forest (State of Chiapas) and find that these payments are not only providing monetary benefits but are also increasing land tenure security and helping communities to organize internally. A number of authors (Godoy, 1992; Hyman, 1983; Schuck et al., 2002; Tognetti et al., 2004; Wunder, 2008; Zbinden and Lee, 2005) confirm that land tenure plays an important role in PES participation, although the right to participate depends on the program orientation (Pagiola et al., 2005; Wunder, 2008). In the case of Mexico, the program explicitly allows the common property regimes to participate and demonstrate with their enrollment the "capacity to participate" (Pagiola et al., 2005; Wunder, 2008) formally at the administrative level of collective property. However, Kosoy et al. (2008) emphasize that the economic factor or monetary incentive might not be the strongest incentive in encouraging participation in a common property regime; rather, the strongest incentive is heritage. According to them, the possibility that future generations will have access to resources as well as the ability to diversify their productive activities encourages community involvement. Although a number of authors (Echeverría, 2010; Tognetti et al., 2004; Wunder, 2008) argue that the type and amount of compensation for the landowners – for example, in the form of opportunity cost calculation (Pagiola, 2008) – are important aspects in determining program participation, the compensation adequacy is relative in the peri-urban context of the studied case. This is because the paid amount of the PES program is partially based on opportunity costs derived from national averages for maize cultivation (Muñoz-Piña et al., 2008). The implicit assumption that these payments adequately cover the real opportunity costs within a peri-urban location seems rather unlikely. This circumstance indicates that the recognition of PES program participation might be motivated by other variables. On the other hand, CONAFOR found it difficult to explain the underlying principles to potential beneficiaries of the national PES program (see Braña et al., 2005 cited in Muñoz-Piña et al., 2008). That observation further contributes to the perspective of Corbera et al. (2009) that the existence of diverse socio-ecological systems makes it impossible to identify a single institutional design that works well in all circumstances. Like the study of Kosoy et al. (2008) and Kelley et al. (2003), they reveal that the financial resources and guidelines for monitoring during and beyond the contractual provisions limit successful implementation of the program.

2.2. The Magdalena River Watershed

The Magdalena River Watershed (MRW) covers an area of approximately 3000 ha. Fed by numerous springs and tributaries, the Magdalena River is the most important perennial water runoff of the basin (Delegación Magdalena Contreras, 2012; Jujnovsky et al., 2010). Most of its surface belongs to the Magdalena Atlitic community. Ownership titles, or property rights, in the MRW date back to the 16th century and cover most of its area. During the 20th century, a social reform known as the "reparto agrario" or agrarian distribution resulted in the recognition of community rights. The earliest requests to be recognized

² Article 27 of the Mexican Constitution provides an explanation of the origin of two common property regimes of land tenure. Agrarian communities are created in areas where interest groups, mainly indigenous communities, can prove with documentation and testimonies that they lived on and managed a land area already in colonial times, while ejidos are created in areas where interest groups, often former hacienda workers, request permission from the Mexican president to manage a certain land area.

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