



Should we pay, and to whom, for biodiversity enhancement in private forests? An empirical study of attitudes towards payments for forest ecosystem services in Poland



Anna Bartczak^{a,*}, Katarzyna Metelska-Szaniawska^b

^a University of Warsaw, Faculty of Economic Sciences, Warsaw Ecological Economics Center, ul. Długa 44/50, 00-241 Warsaw, Poland

^b University of Warsaw, Faculty of Economic Sciences, ul. Długa 44/50, 00-241 Warsaw, Poland

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ABSTRACT

This paper investigates the possibility of forest policy changes in Poland. The main objective is to investigate whether, and to whom, the society would be willing to pay for providing biodiversity enhancement in private forests. The empirical evidence is derived from a stated preference survey conducted on the national level and analyzed using a multinomial logit model (MNL). Our findings show a rather strong potential for the implementation of payments for ecosystem services (PES) in private forests, even though historical and institutional conditions are not favorable. The results also indicate a significant role of environmental attitudes in viewing the national and local governments as those responsible for financing the implementation of changes in private forests. They allow to provide recommendations for planning authorities and decision-makers not only in Poland but also in the other Central and Eastern European countries, where payments for ecosystem services have no long tradition.

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1. Introduction

The design and evaluation of payment for ecosystem services (PES) schemes have recently become the focus of intensified research by economists, in particular in the field of environmental economics and ecological economics. According to these studies, better knowledge of forest ecosystem services (ES) and to whom the society would be willing to pay for their provision can improve forest management and increase social welfare. More and more countries are now acknowledging the importance of a full range of ES from forests. Furthermore, PES have become an increasingly popular approach to dealing with problems of environment management and conservation around the world (Kemkes et al., 2010). Such programs, differing in their scope and adopted solutions, have been implemented in several countries on different continents, e.g., Costa Rica, Mexico, United Kingdom or the United States. Usually, PES are used for nature conservation measures on private land to compensate the landowners for income losses or opportunity costs experienced. Nature conservation can either be government-financed, which is the most typical case in the OECD, or it can be

user-financed i.e., users or local beneficiaries pay the landowners directly for providing the demanded ES (Zandersen et al., 2009).

The topic of introducing and designing forest-related PES schemes in countries of Central and Eastern Europe has not yet been covered well by the economic literature. Due to their socialist past – dominating state ownership of resources and centrally-planned economies – any analysis of forest land governance in these countries must be conducted with account for the broad scale institutional change that they experienced after 1989 (see, e.g., Bouriaud et al., 2013). Studies of PES must in particular focus on these societies' perceptions e.g., regarding the role of the state in forest management, as well as trust between members of the society who could be ES users or ES providers.

In this paper, we focus our analysis on the case of Poland and biodiversity ES. Almost 30% of the land area of Poland is covered by forest. Some of the last remaining old-growth forests of Europe and much of their biodiversity is also located in Poland. At the same time, the country has a population, which is keen to use forests for resources and recreation. For many years in Poland, like in other countries, the traditional focus of forest management has been on timber harvesting. Poland has neither implemented PES schemes in practice, nor has its forest management been analyzed thoroughly from the point of view of the potential for implementation of PES schemes. Such assessment requires focusing in particular on the institutional framework for PES, both in terms of formal institutions

* Corresponding author.

E-mail addresses: bartczak@wne.uw.edu.pl (A. Bartczak), kmetelska@wne.uw.edu.pl (K. Metelska-Szaniawska).

(the legal framework), as well as informal ones (social relations, perceptions and historical legacies).

In particular, in this paper we investigate whether, and to whom, the society would be willing to pay for providing biodiversity enhancement in private forests in Poland. We use the findings of a stated preference survey conducted on the national scale sample of Polish respondents and analyze the data using a multinomial logit model (MNL). In our analysis, we include information on respondents' environmental attitudes and examine their role for decisions concerning the choice of the PES scheme in private forests. Environmental attitudes are defined as a psychological tendency expressed by evaluating the natural environment with some degree of favor or disfavor, and are a crucial construct in the field of environmental psychology (Hawcroft and Milfont, 2010). Understanding people's underlying motives such as their environmental attitudes is an important aspect of promoting ecological policy. Internal motives determine behavioral intentions and this can be expressed in individuals' willingness to pay (WTP) for changes in environmental quality (see, e.g., Bateman et al., 2002).

Our results shed more light on Polish society's attitudes towards PES and may provide recommendations for planning authorities and decision makers not only in Poland but also in other countries, where social conditions for introducing PES seem unfavorable and such schemes do not have a long tradition. Although, as we will demonstrate further in the paper, Polish society is hardly familiar to PES, the results obtained in this study show that Poles' attitudes towards payment for such services, in particular biodiversity, are in line with the expectations developed on the basis of theoretical approaches and practical experiences of economists working in the field of PES during the recent years (e.g., Farley et al., 2010; Kemkes et al., 2010) relating, in particular, to the choice between voluntary and coerced PES.

The paper is organized as follows. In Section 2 we present an overview of approaches to PES developed in the economic literature to-date emphasizing their theoretical basis and implications. Basic facts concerning the ownership structure and use of private forests in Poland, as well as the legal framework for their operation and socio-historical context are discussed in Section 3. Section 4 presents the survey design and employed methods, while Section 5 contains the empirical study and the discussion of its results. Recommendations and future outlook are presented in the last section, together with the conclusions.

2. PES – overview of different approaches

Ecosystem services (ES), broadly defined by the Millennium Ecosystem Assessment as “the benefits people obtain from ecosystems” (MEA, 2005 p.V), have been the subject of study by economists for several years now, both within the field of environmental economics as well as the ecological economics. While representing a significant contribution to sustainable human well-being, larger than the contribution of marketed goods and services, ES are being threatened and degraded by human activity (Farley and Constanza, 2010). From an economic point of view these services give rise to market failures which include, in particular, the presence of externalities, the public good nature of many ES, imperfect property rights, as well as incomplete knowledge and information (Tietenberg, 2006).¹

PES have attracted particular interest as potential mechanisms allowing to translate non-market values of ecosystems into financial incentives for their providers to supply them. Other gov-

ernment policy tools to encourage such internalization mentioned in the literature are prescriptions (regulation), penalties (taxes), property rights (e.g., land use moratorium, tradable permits), and persuasion (public information) (Engel et al., 2008; Salzman, 2005; Kemkes et al., 2010). During the last nearly 10 years, economic literature has come up with several definitions and approaches to PES. Wunder (2005, p. 3) defines PES as a voluntary transaction, where a well-defined environmental service (or a land use likely to secure that service) is being “bought” by (minimum one) service buyer from (minimum one) service provider, if and only if the service provider secures service provision (conditionality). Engel et al. (2008) further explain that as land uses alternative to conservation are usually more beneficial for ES providers, the latter will have incentives to opt for such uses although they often cause externalities (negative effects on third parties, e.g., in a classical example, on downstream users of a water resource). The buyers (consumers) of the ES could however, pay the ES providers to induce them to provide the service instead of changing their land use. Such payment would need to be at least equal to the benefits forgone by the ES providers (including any opportunity costs and transaction costs connected with the PES agreement) and at the same time equal or less than the value of the ES to the buyers. Engel et al. (2008) further distinguish between user-financed PES programs (where the ES buyers are the actual users of the service), which are most likely to be efficient, and government-financed PES programs (where the buyers are a third party acting on behalf of service users, usually a government agency, but possibly also another entity such as an NGO or international organization), which are less likely to be efficient. They note, however, that government-financed PES programs may be more cost-effective than user-financed programs thanks to economies of scale in transaction costs (Engel et al., 2008). The economic theory behind such an approach to PES, advocated in particular by the environmental economists, relates to market failures (in particular externalities and public goods), as well as the Coase theorem. As a consequence, it emphasizes the reduction of transaction costs, clear allocation of property rights and inducing bargaining processes between ES providers and ES buyers (Gomez-Baggethun et al., 2010). The case in which the ES buyers contract directly with the ES providers is closest to the pure Coasian case (Engel et al., 2008).

Several criticisms have however, been raised with regard to the above Coasian approach to PES. An important practical one relates to the fact that PES can rarely be considered as purely voluntary transactions, since usually the state or local communities are engaged in their establishment (Vatn, 2010). More generally, such approach fails to take into account the complexities related to uncertainty, distributional issues, social embeddedness and power relations (Muradian et al., 2010).

A more general definition of PES has been proposed by the ecological economics approach. Acknowledging the public-good nature of ES, Muradian et al. (2010) emphasize the collective action problem that arises when coordination of various actors' actions is needed to avoid outcomes undesirable from the social point of view. According to this approach the main goal of PES is creating incentives for the provision of such services, i.e., changing individual or collective behavior so that it does not lead to ecosystems deterioration. PES are then viewed as “a transfer of resources between social actors, which aims to create incentives to align individual and/or collective land use decisions with the social interest in the management of natural resources” (Muradian et al., 2010; p. 1205). Such transfers, whether monetary or not, are embedded in their social context, including social perceptions of the relationship between land use and the provision of ES, which may be particularly significant factors in determining the feasibility of PES under incomplete information. According to Muradian et al. (2010) PES transfers may

¹ For a more detailed discussion of the definition of ES see Farley and Constanza (2010), who also argue that ES can be regarded as fund services (as opposed to ecosystem goods which are stock-flow resources).

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