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Analysis of individual private forestry in northern Spain according to economic factors related to management

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ABSTRACT

In addition to being motivated by profit, the management decisions taken by non-industrial private forest (NIPF) owners involve other considerations beyond timber, such as non-timber goods and services, as well as factors that affect the level of timber output from the land. Ensuring and improving forest profitability to make NIPF management viable is one of the main challenges faced by this type of landowner. This study empirically explores and assesses management by NIPF owners, through analysing attributes of forest economics (investment in holdings, expenditure on planting and silviculture, public subsidies, along with timber and non-timber incomes). With the aim of predicting outcomes, a multiple regression model was also constructed to investigate and quantify the relationship between socioeconomic and holding factors, and the planting activities carried out by NIPF owners. For this, 103 resident forest landowners in a forest region in northern Spain were interviewed in person, during March 2004, about their commitment to and involvement in land management during the period 1999–2003. The results mainly revealed that attractive forest returns and favourable market conditions for timber production are significant factors for investment in and development of forestry, with personal and family conditions also being important factors in explaining the type of land management carried out. In particular, the multiple linear regression model for forest planting activity correctly explained 84.5% of the variability observed in the study population, indicating that both the investments in and

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the incomes from forestry play an important role in the activity, as does the size of the holding. The findings may be of interest in promoting public measures related to timber markets and economic incentives for forest management, which will allow landowners to develop economically viable practices, as well as enabling fulfilment of social and environmental demands for sustainable forestry and rural development.

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Introduction

The need to consider environmental issues as well as incorporating social and economic criteria in forest decision-making and management has been recognized and accepted as a paradigm for rural development in recent times, a salient theme in forestry throughout the world today. Sustainable forest planning guidelines are particularly complex for non-industrial private forest (NIPF) owners because their objectives are much more diverse than those of other types of private landowner, given that they are heterogeneous by nature (Arano and Munn, 2006). As pointed out by Alig et al. (1990), NIPF owners and their holdings are diverse both within and across regions, where intentions vary widely and often change over time. Furthermore, many of them do not cite timber production as one of their primary aims.

The situation is particularly complex within regions where this type of private forest ownership predominates and contributes significantly to rural development. In many rural areas, NIPF land management generates numerous benefits that complement the economy, contributes to social welfare and improves the natural environment (Marey-Pérez and Rodríguez-Vicente, 2008). Thus, in addition to being motivated by profit, the decisions made by NIPF owners with regard to production are affected by other considerations beyond timber, such as non-timber goods and services, as well as factors that affect the level of timber outputs from the land (Newman and Wear, 1993). Therefore, the balance among forest productivity, management and monitoring, and profitability is more complex to model and forecast for NIPF ownership than for other types of land tenure.

Two basic theoretical models have been used to analyse and model the types of NIPF land management within the extensive literature concerning this type of private individual ownership: *utility maximization* and *profit maximization*. In the utility maximization approach, NIPF owners select from among timber and non-timber options that forests offer to maximize perceived utility for themselves (financial and non-financial benefits from the land), whereas the profit maximization assumption views the landowner as a firm or commercial entity and the forest as a unit of production, usually of timber products (Alig et al., 1990). Studies of NIPF owners commonly profile and model them as utility-maximizers of forests, given that non-timber products may be of equal or greater importance to NIPF owners than timber products (Binkley, 1981; Boyd, 1984; Pattanayak et al., 2002; Conway et al., 2003; Potter-Witter, 2005).

In a more globalized economy, the current and future competitiveness of the forest management practices carried out by many NIPF owners are nevertheless threatened, as forest practices that are socially acceptable and environmentally respectful may not be economically profitable. Moreover, high investment in silvicultural treatments is required throughout the productive cycle and there is a long delay between planting and timber harvesting in the rotation of forest species. This means that landowners cannot generate a constant economic cash-flow, which would encourage and ensure continuous management and monitoring, as in other agrarian practices. Factors such as the long-term nature of any profits, lack of professionalism, the use of forestry practices that are based on family requirements, as well as the increasing proportion of landowners (who do not earn their living from agriculture as they have more profitable primary occupations), and market competition based on low prices but high costs (Bolkesjø and Baardsen, 2002; Marey-Pérez et al., 2004) all contribute to destabilizing the economic sustainability of forest management, and hence, social and environmental sustainability in rural areas.

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