



Research article

Private forest owners motivations for adopting biodiversity-related protection programs



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ABSTRACT

Since economic incentives are typically fairly low for many non-industrial private forest owners, it is of interest for public policy to examine whether other motives might play a role on adoption of Biodiversity-related Protection Programs. In a survey of non-industrial private forest owners, a number of current programs, that include biodiversity protection to some degree, are investigated: Prosilva, environmental associations, other programs of forest management. Across the survey, adoption amounts to 22% for all the programs jointly, and is shown to depend on economic, social and intrinsic motives, with significant crowding-out only between the economic and intrinsic motives, that is, intrinsic motives likely lessen the effectiveness of economic incentives. That does not occur with social motives; these results constitute a test of the “reputational crowding-out” theory of Bénabou and Tirole, (2006). Adoption of any program is strongly negatively correlated to the others. Nearly no respondent adopted the Natura 2000 program.

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1. Introduction

This paper focuses on identifying the role of non-industrial private forest owners' motivations in adopting programs of biodiversity protection. There are a number of public voluntary programs that include biodiversity protection to some extent, even though they have other objectives as well. These include wood products sustainable forest management certification (PEFC-FSC), several types of forest management plans and the famous Natura 2000 program. Forest owners can also take part in non-public voluntary programs of forest management with varying degrees of biodiversity protection. These include various professional organizations such as cooperatives and syndicates (unions), environmental associations and the “ProSilva” organization promoting an alternative form of forest management.

Generally, behaviors toward biodiversity protection may be termed prosocial in the sense that their social benefits exceed those of the supplier of the protection, or have a positive effect on society. Adoption of prosocial behaviors has been shown to depend more on social motives than on economic ones; for example, Freeman (1996) shows that having been asked by a person is a more powerful motive than the economic one. Oliver (2013) reviewed a

number of nudges that illustrate the importance, for designing public policy, of understanding the motives of adoption of such programs.

Self-determination theory, developed by psychologists Ryan and Deci (e.g. (Ryan and Deci, 2000)) is a general theory that argues that individuals may have both extrinsic and intrinsic motivations. Extrinsic ones lead to what is termed “controlled” actions, that is, actions motivated by a pressure that is perceived as external to the individual, and can be more or less accepted (“integrated”) by that individual. Such pressures encompass penalties and rewards; they include economic or financial incentives, threats, peer pressures and feelings of moral obligation. Intrinsic motivations, on the other hand, lead to actions that are called “autonomous”, in the sense that the individual carries them out for themselves, without any perceived external pressure. Thus, for a forest owner, adopting any particular program may be motivated extrinsically (e.g. because of financial incentives or because she is asked to adopt by a friend) or intrinsically because she identifies with this particular program (e.g. for the greater good). The diversity of motives in silvicultural and harvesting behaviors is well documented for non-industrial private forest owners, e.g. Karppinen et al. (1998) or Kendra and Hull (2005).

The present paper focuses on one formalization of prosocial behaviors, developed by Bénabou and Tirole (2005); (2006) because it gives a more precise content to self-determination from an environmental management viewpoint, and at the same

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time integrates several lines of research on motivations. These authors have a particular interest in economic motives as they differentiate not only from the intrinsic motives but also from social motives. In the present paper, **economic** motives include, primarily, financial compensations or penalties; fiscal exemptions; risk hedging; time saving; acquiring management information; and future or putative use. For many forest owners in the population of interest, the forest property is relatively small and forest income is negligible, as seen in Table 3 below; economic motives might then not be very powerful and other types of motives might be relatively important. **Social** motives include reputation (networks, family, peer-pressure); self-image (moral satisfaction, warm glow); desire to belong to a group or differentiate from it; socialization; reciprocity.¹ Much in the way that economic motives might be used to design a forest policy, social motives can also be used in a variety of ways that would foster the social recognition of the adopter.

Intrinsic motives include, but are not limited to, the willingness to work for the quality of the environment; well-being of the community; bequest or patrimony values; attachment to the forest; mastery over forest practices; or definite personal ideas on how a forest should be managed. Bénabou and Tirole (2005, p.8) refers to these intrinsic motives as “altruism and public goods”. However, it became apparent in stakeholders discussions and questionnaire tests, that the “public good” concept is interpreted in different ways by forests owners, as there is not a single dimension of the forest. Because of that, the content-neutral, but hardly descriptive, term “intrinsic” has been chosen here.²

In some cases, the difference between social and intrinsic motives may appear thin, e.g. moral satisfaction and altruism. The difference resides in whether the adoption is “controlled” (motivated by a pressure perceived as external to the individual) or “autonomous” (the individual chooses the adoption “for itself”). That corresponds to the difference between “moral satisfaction” and “public good and altruism” in Bénabou and Tirole (2006). Although, ultimately, that difference is one of degree rather than a well-defined border.³

These three categories of motives may act positively or negatively for any program, depending on the forest owner, e.g. economic incentive may be considered attractive for one, thus be declared as a motive for adopting a program; while it may be insufficient for another, and thus be cited for non-adoption of a program. Bénabou and Tirole (2006) formalize the idea that the two kinds of extrinsic motives - economic and social - may be opposed and that everyone prefers that her actions (adoptions of programs in the present case) appear intrinsically motivated - called “disinterested”. Consequently, when a program becomes financially compensated, some of the adopters of this program might be concerned that their social network believes they adopt the program for the money. If it had not been financially incentivized, it would have been clear that they were adopting for intrinsic reasons. This “social credit” could then lead to one’s improved social image or better social network identity.⁴ Such **crowding-out** of

social motives by economic ones can reduce adoption for a range of economic incentives. This is one of the key ideas in Bénabou and Tirole (2006), but similar crowding-out effects are abundantly documented, see e.g. Frey and Oberholzer-Gee (1997), Gneezy and Rustichini (2000), Nyborg and Rege (2003), Carpenter and Myers (2010), or Oliver (2013). Fig. 1 below summarizes the interconnections of motives.

The main goal of the present paper is to test whether the Bénabou and Tirole “crowding-out” theory applies to forest owners, and to test whether crowding-out effects are already at work with current forest biodiversity-related programs. It also seeks to identify potential pitfalls and leverages in designing such programs. The test operates, in a nutshell, in the following way. A sample of non-industrial private forest owners answered a survey about their motives for adopting programs. They also supplied individual and property characteristics. Each such motives and characteristics are represented by variables, coded 1/0 (presence/absence) in the case the motives. These variables are inserted in an econometric discrete choice model of the decision to adopt a program. The output of the model is a set of estimated coefficients that reflect the quantitative effect of these characteristics and motives on the probability to adopt a program. When a coefficient is not significantly different from zero, its corresponding characteristic (or motive) is said to have no effect. The cross-product of the motives are also included in the variables of the model. Several cases may occur, but the crowding-out is then a case when the estimated coefficients of the social and economic motives are both positive but the estimated coefficient of the cross-product is negative, so that the simultaneous presence of both motives leads to a probability of adoption of the program that is lower than if the coefficients of the two motives were simply summed together.

From a public policy viewpoint, the existence of a crowding-out effect questions the efficiency of a policy, particularly for environmental policies, since it means that economic incentives are sometimes wasted as they reduce adoption (or have a lower-than-expected effect) because they crowd-out social motivations. This questions some principles of the valuation of ecosystem services as valuation does not account for such crowding-out. Also, valuation studies are often framed in terms of contributions to a public good, that is, essentially the owners’ intrinsic motivation, and not the social motivation. Therefore, valuation studies might miss the

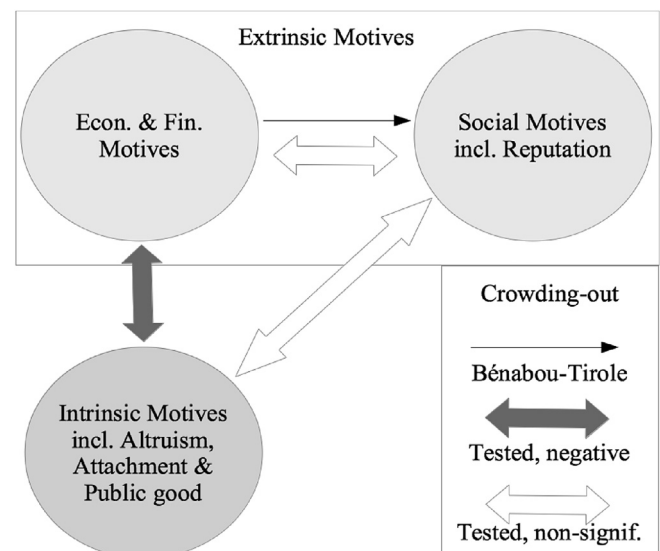


Fig. 1. Motives for programs adoption.

¹ Bénabou and Tirole (2005) use the term “reputational” for these motives, e.g. p.3. For a more neutral, and possibly broader, interpretation, the present paper uses the term “social” instead.

² In stakeholders discussions, the terms “ethical” and “moral” also emerged to describe these motives, but to some readers, such words might appear to carry a particular meaning of “being the right thing to do”.

³ Indeed, self-determination theory argues that any motivation for any particular action can be gradually internalized (“appropriated”), that is, the motivation can become more intrinsic as the individual identifies more with it.

⁴ Whether this desire for improved social image is in turn motivated economically (e.g. accessing better prices through a network) or by other motives, is beyond the scope of the present paper.

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