Eliciting forest owner compensation levels for biodiversity protection: A comparison of two mechanisms

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Abstract

Biodiversity protection (and other non-timber) benefits are increasingly being compared with timber values in the crafting of multifunctional forest policies. There is an abundant literature valuing such benefits through stated and revealed preference methods from environmental economics. However, few studies investigate (1) how much private forest owners would require in compensation to forego timber incomes and other benefits to offer (parts of) their land as biodiversity reserve; and (2) whether the mechanism offered for payments may influence required levels and willingness to participate. Shedding light on these two questions is the primary purpose of this paper. From a public point of view, the more biodiversity can be purchased for a given (scarce) government budget, the better. However, given the often conflict-ridden relationship between forest owners and the government (and sometimes the public at large) the payments and protection scheme need to be designed taking forest owner concerns into account to succeed. We use a mail survey to two samples each of 500 Norwegian forest owners to elicit their attitudes towards two types of payment mechanisms and their required compensation levels per hectare (willingness to accept compensation – WTA). The first mechanism is the standard approach in Norway where owners voluntarily declare interest in setting aside land, and are compensated according to a specified formula given that the forest contains biological values. The second, alternative mechanism, offers the owner the option to submit a bid in a public auction, against a participation fee to deter those who know their forest lacks sufficient biodiversity. The survey also maps forest owner's use and interest in forestry, economic importance, attitudes towards alternative forest policies, as well as collecting socio-economic information. For the two mechanisms, we estimate forest owners' WTA and the amount and quality of land they would set aside at stated WTA levels, and their willingness to participate in the respective schemes. Based on the data, we construct a simple supply curve for size, types and quality of forests for biodiversity protection at stated compensation levels. Results are potentially important both for our understanding of forest owner preferences, and the costs and optimal level of public biodiversity protection schemes currently ongoing in many countries.

Key words: forest, biodiversity, compensation, willingness to accept

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