

nature-based property rights. PES enables trade-offs for payers and actors: (1) payers can enforce/project/reflect/transfer their norms or policies over other authorities with payment; and (2) actors can change B.A.U. performances or income sources with compensation. Payers may worry about the possibility of leakage or policy ineffectiveness, and actors may worry about the potential of permanent economic dependency, or loss of future development opportunities. It is true that the cost of environmental services will rise as the actors' incomes grow, or as their awareness of schemes and negotiation skills are improved. It is also true that PES is cost-effective when it is targeted to the poorest actors as an incentive system. Even with many barriers to overcome—such as transaction cost of communication, abysmal power of negotiation, heterogeneous coalition of individuals and communities, illegal use or occupation of nature, and poor knowledge for implementation—PES will work effectively as long as payers have more money than actors, and those actors live close to nature.

## C-08 Culture, Economics, and Sustainable Forest Management

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**Landowner's discount rates and forest management behavior: is there a link?** Atmadja, S. (*Center for International Forestry Research, Indonesia*; [s.atmadja@cgiar.org](mailto:s.atmadja@cgiar.org)), Sills, E. (*North Carolina State University, USA*; [erin.sills@ncsu.edu](mailto:erin.sills@ncsu.edu)).

Discount rates are fundamental parameters in forest economics. They measure willingness to trade current consumption with investment for the future; those with high discount rates are less willing to reduce current consumption for future returns. For example, higher discount rates are theoretically associated with shorter rotation lengths. But empirical estimates of discount rates and their relationship with forest management decisions are scarce. We address this by testing the link between forest management behaviors and discount rates of small, limited resource woodland owners in North Carolina and Virginia, elicited through a choice experiment involving a series of trade-off questions between two harvesting scenarios. As expected, landowners with higher discount rates are more likely to have harvested in the recent past. However, discount rates are poor predictors of behaviours such as contacting foresters for management assistance, and investing in timber stand improvement. Written wills – which are crucial for safeguarding land inheritance of future generations – are (unexpectedly) more likely among landowners with high discount rates. Thus, the empirical importance of discount rates is not uniform across behaviours. In many cases, other factors – such as acreage, distance to woodland, and tenure – are more closely related to forest management behaviour.

**Describing the real forest: non-blackboard forest economics.** Hostettler, M. (*Cycad, Switzerland*; [martin.hostettler@cycad.ch](mailto:martin.hostettler@cycad.ch)), Deegen, P. (*TU Dresden, Germany*; [deegen@forst.tu-dresden.de](mailto:deegen@forst.tu-dresden.de)).

Ronald Coase criticized economics for its blackboard approach. Following his suggestion we present a novel approach to forest economics, which emphasizes dynamic social coordination and disequilibrium. Rapidly leaving the magic forest of Robinsonian optimizing and instantaneous Walrasian exchange, the second best forest is described by frictional Coasean exchange. But looking back, we learn that our enriched models of the market process still explain only a minor part of what we really observe. We leave the market square and enter the public square. Further on we introduce politics without information and romance. This third best world is governed by myopic self-interested individuals processing really sparse information (Hayekian knowledge problems). Major procedures for social coordination (shaping forests) are democracy, bureaucracy, and corporatism, producing important phenomena such as rent-seeking and agency costs. Thinking about time and institutional change, we finally incorporate Austrian insights such as Knightian uncertainty, equity capital, residual income, Kirznerian discovery and entrepreneurship, or Smith-Menger-Hayek-Polanyi type of coordination (spontaneous order). Describing real forests is complexity science. Muddling through with trial and error is probably the best advice one can give to students of forest economics.

**Non-anonymous behavior of aboriginal people.** Kant, S. (*University of Toronto, Canada*; [shashi.kant@utoronto.ca](mailto:shashi.kant@utoronto.ca)), Vertinsky, I. (*University of British Columbia, Canada*; [Ilan.Vertinsky@sauder.ubc.ca](mailto:Ilan.Vertinsky@sauder.ubc.ca)).

The standard assumption of anonymity among different interacting agents may hold for the market situations. However, in resource management situations, specifically in community and Aboriginal context, most of the interactions are non-anonymous. Hence, for forest management decision making, an understanding of the preference of the members of a specific group with respect to the members of other group is critical. We organized behavioral experiments—Dictators Game, Ultimatum Game, Trust Game, and Social Capital Game—in an Aboriginal community (First Nation) in Canada. The participants were asked to reveal their preferences, through four different games, with respect to members of five different groups. The groups included an anonymous group, two-groups based on gender (man and woman), and three groups based on age (young, middle-aged, and elder). Fifty-eight people (29 males and 29 females) from the community participated in these games. In this paper, we present a theoretical framework for non-anonymous human behavior and empirical findings, based on the statistical analysis of four games data, from the Aboriginal community in Canada. We also discuss implications of these findings for forest management in Canada.

**Faustmann model in a real world.** Zhang, Y. (*Auburn University, USA*; [yaoqi.zhang@auburn.edu](mailto:yaoqi.zhang@auburn.edu)), Kant, S. (*University of Toronto, Canada*; [shashi.kant@utoronto.ca](mailto:shashi.kant@utoronto.ca)).

The Faustmann model is often claimed as the golden rule of forest management and the cornerstone of forest economics. However, only a limited number of forest managers, in developing as well as developed countries, are aware of the Faustmann model, and many of them feel that the model does not incorporate real situations. Conceptually the model does not incorporate context-dependent and dynamic preferences, and therefore the model cannot explain diversity of forest rotations/forest harvesting decisions followed by forest managers that are based on biological maturity of forests, sustained timber supply based on the production capacity of a manufacturing-unit, and economic and social needs of private forest owners. Similarly, the estimated land values based on Faustmann Model are unable to reflect the market values of forestland. For example, the market values of