

## ***Environment and Resource Economics***

### **Eliciting public preferences for cultural landscapes and forests – A Contingent Valuation Survey**

Extensive tree planting for carbon sequestration purposes will affect landscape aesthetics, recreation possibilities and biodiversity levels. The economic value of these ecosystem services must be identified and included for a complete analysis of climate forests as compared with cultural and more natural landscapes. The VALUECHANGE project at Statistics Norway (SSB) will explore and document the public's preferences for changes in ecosystem services from Norwegian cultural landscapes caused by the planting of evergreen, climate forests and from alternative land use management. This project will use and combine economic valuation methods (stated preferences) and forest related social indicators for landscapes. The goal of the project is to gauge people's preferences for the changes in ecosystem services associated with planting of climate forests. For this project, a Master student may take part in designing a contingent valuation survey for cultural landscapes and forests. The survey will include economic valuation questions (willingness to pay) related to the cultural values of landscapes using contingent valuation and choice experiments. The survey will further include questions that will enable construction of social indicators for forests and for cultural landscapes (for a review see e.g., Kajala et al., 2007). Hence, the survey combine well-tested stated preference methods in economic research (Bateman and Willis, 1999; Louviere, Hensher and Swait, 2000), which are well suited to assessing trade-offs, with the landscape and forest management literature that has long investigated features and indicators characterizing forest and cultural landscapes that people prefer for different uses (e.g. Gundersen and Frivold 2008). The Master thesis may describe standard survey development methodology Internet surveys (Dillman, Smyth and Christian, 2009) as well as challenges in designing a valid contingent valuation survey. As the survey will be conducted in Norwegian, the master student should be fluent in Norwegian. The student will take part in all parts of designing the contingent valuation survey from focus groups to testing out the survey and analysing pilot web data, which will be collected in collaboration with TNS Gallup.

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### **Estimating Social benefits of cleaning up contaminated marine sediments in the Norwegian Fjord**

Many Norwegian fjords have sediments contaminated with lead (Pb), mercury (Hg), copper (Cu), PAH, PCB and TBT for previous industrial activities causing food advisories, restricted recreational and commercial fishing and overall impacts on marine ecosystem services. There are high costs of removing or covering the contaminated sediments; but the benefits in terms of avoided effects on recreational activities and marine ecosystems could also be potentially large. As part of an ongoing project Stated Preference (SP) internet panel surveys (Contingent Valuation and Choice Experiments) will be conducted in selected fjords around the country to elicit people's willingness-to-pay (WTP) to get these environmental improvements, and what determines their WTP. New methodological developments in SP surveys to increase the validity and reliability of these valuation methods will be tested. The results will be used as inputs to the

environmental authorities in their Cost-Benefit analysis and ranking of fjord to be cleaned up with the limited budget available.

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### **Valuing recreational and health benefits of moose hunting in Norway**

A nationwide internet survey of moose hunters in Norway was conducted in the autumn of 2019, using both Stated Preference studies to elicit their expenditures, consumer surplus (recreational value) and health benefits from the hunting experience; overall, and on Statskog's properties in particular. The thesis would consist of using the dataset to perform econometric analyses in order to identify the determinants of their recreational value and health benefits from moose hunting, and ways to improve the economic benefits of moose hunting.

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### **Estimating the environmental costs of wind farms**

Windpower is renewable energy, but the extensive plans for on-shore windfarms are causing local protests and concerns by environmental NGOs and the environmental authorities in many parts of Norway. Not only the landscape aesthetic, recreational and bird impacts of the wind turbines themselves will be considered, but also the environmental impacts of the infrastructure needed (roads and electric transmission lines). As part of a Norwegian Research Council (NFR) project "WINDLAND", case studies on selected wind farms and an overall wind power plan for Norway will be implemented, in order to come up with estimates of the external costs of wind power at different sites, to be combined with the costs of wind power production in a model for optimal siting of on-shore wind power investments. Stated Preference (SP) internet panel surveys (Contingent Valuation and/or Choice Experiments) will be conducted to elicit people's willingness-to-pay (WTP) to avoid environmental impacts of wind power, and what determines their WTP. New methodological developments in SP surveys to increase the validity and reliability of these valuation methods will be tested.

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### **Estimating the environmental costs of aquaculture**

Aquaculture, both salmon and sea trout farming and new forms of aquaculture, impacts the marine environment in many ways but the extent of the impacts is still not clear. As part of two ongoing project a Norwegian Research Council (NFR) projects COAST-BENEFIT and MarES, Stated Preference (SP) surveys (Contingent Valuation and/or Choice Experiments) will be conducted in different parts of Norway in order to elicit people preferences for and against aquaculture and people's willingness-to-pay (WTP) to avoid the environmental risk aquaculture represents, and what determines people's preferences and WTP. New methodological developments in SP surveys to increase the validity and reliability of these valuation methods will

be tested; especially the effects of communicating information of environmental impacts with a high degree of uncertainty.

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## **Recreational value of fishing in the Inner Oslo Fjord**

Based on extensive Stated Preference surveys (Contingent Valuation) , both on-site and internet surveys, of recreational fishermen in the Oslo Fjord the last few years, an extensive dataset is available to estimate the recreational value of saltwater fishing; as well as what explains the variation in peoples activity level and recreational value. While there are numerous studies on the recreational value of freshwater fishing, valuation studies of recreational saltwater in Norway are very scarce. A preliminary finding is that 55 nationalities fish in the Inner Oslo Fjord, 35 % of the population in the municipalities surrounding the Inner Oslo Fjord (defined as inside of Drøbak) do fish in saltwater every year. Thus, the annual recreational value of this activities could amount to hundreds of million NOK every year. Documenting this value would be important input to a sustainable management of the Inner Oslo Fjord. This master thesis topics can also be combined with participation in “Tverrfaglig Masterklasse 2020: Indre Oslo Fjord” (see separate posting in this Master thesis catalogue in Economics).

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## **Effects on CO2-emissions of the tax free arrangement**

The tax free arrangement implies that traveling abroad by plane or ferries indirectly become cheaper, both because the traveler can buy tax free goods cheaper than elsewhere, and because the sales of tax free goods generates income for airports and ferry companies, which can further lead to lower prices of flight and ferry tickets. Thus, such transport can indirectly be stimulated by this arrangement. Flight and ferry transport are important emission sources, and one could ask the following question: To what degree does the Norwegian tax free arrangement affect emissions of CO2 related to such transport?

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## **Environmental and resource economics**

- Conservation auctions o Using procurement auctions to pay land owners for undertaking management practices that promote biological diversity in forests. This MSc thesis can be purely theoretical, or applied using data. o Agent bidding behavior in procurement auctions under incomplete monitoring. There exists a data set that from a previous MSc thesis on this topic. • Payments for ecosystem services (PES) o PES has gained increased attention internationally the last decade, and there are some existing PES-programs in operation. What are the experiences from these programs, and what implications do these experiences have for the design of future PES-programs? • Contracts and compliance o It is costly to monitor compliance of contract terms

for many environmental conservation contracts. A possible solution to this problem is to require contract holders to self document compliance, and conduct less frequent but more in-depth controls of such contracts. Self documentation increases contract holder costs and hence the size of the contract payments. This opens for several researchable issues like the conditions for such contracts to be welfare enhancing over more conventional contracts.

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## **Macro economics**

- The impact of high taxes on GDP/capita. The Nordic countries have higher marginal tax rates than many other countries. According to conventional wisdom, high taxes would reduce economic growth and hence welfare measured as GDP/capita. A cross-country econometric study of the relationship between tax rates and welfare using register data from the OECD/the World Bank.
- Defense expenditures are believed to reduce funds available for other investments in an economy that are expected to be more conducive for promoting economic growth. A literature study, possibly coupled with an own panel data study on the impacts of defense spending on economic growth.

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