

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 KLIMALAND 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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Benefit-Cost analyses (BCA) of measures that reduce environmental impacts of highway- and tunnel wash water runoff

Nordic Road Water (NORWAT) is a four-year research and development programme under the Norwegian Public Roads Administration (NPRA, Statens vegvesen) (2012-2015).

The purpose of the agency programme is that the NPRA shall plan, build and operate the road network without causing unacceptable harm to the aquatic environment. NORWAT will focus on what chemical and biological effects polluted runoff water has on the aquatic environment, and what measures are most appropriate to reduce the risk of environmental harm. For more information about the programme and previous published master thesis, visit our website <http://www.vegvesen.no/Fag/Fokusomrader/Forskning+og+utvikling/NORWAT>.

Highway and tunnel wash water runoff may contain high levels of pollutants that may cause deterioration of the aquatic environment (e.g. effects on the ecosystems, reduced drinking water quality, less useful for irrigation, recreation etc.). To reduce the impacts from these polluted runoffs, sedimentation ponds are often built. This measure removes pollutants from the water by sedimentation processes, i.e. particle bound contaminants are settled out from the water phase and retained in the pond. This is just one type of measure and there are several other which may be appropriate as well. In contrast to other topics such as air pollution and noise, traffic related aquatic pollution is only marginally considered in decision-makings in the sense that the benefits and cost of reducing the impacts are not sufficiently accounted for in benefit-cost analyses (BCA).

These impacts are costs to the society that essentially should be accounted for in any BCA of road investments. Unfortunately, there is currently no framework for including these factors in the BCA's for road projects; although they are accounted for in the wider impact assessment as non-monetary impacts. Including these in the BCA, may improve the decision making with regards to which roads to invest in and which abatement measures that that should be implemented to reduce the impact of highway and tunnel wash water runoff in the most efficient way.

The reasons for the lack of an appropriate BCA or cost effective tool for assessing the societal impacts of road run-off and tunnel wash is that the monetary values that the society derives from abatements measures have not been quantified and hence, a BCA that includes has not been possible.

To help resolve these inherent problems, we are soliciting two master theses with the following objectives; which are closely related:

1. Deriving the monetary unit values (costs) of highway and tunnel wash water runoff to the society
2. A benefit-cost analysis of abatement measures using a case example

The relationship between the two topics above is that the second topic will depend on the values derived from the first topic. It is therefore necessary that the chosen candidates are willing to work together.

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Non-market survey methodology: Eliciting public preferences for cultural landscapes and forest.

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Miljøkostnader av fornybar elektrisitetsproduksjon

Stor satsning på nye fornybare energikilder i Norge har negative miljøeffekter, og kan dermed være samfunnsøkonomisk mindre lønnsomme enn en skulle tro ved første øyekast. Vindkraft og mikro/mini/små vannkraftverk medfører landskapsestetiske inngrep. Det er derfor viktig å dokumentere miljøkostnaden av disse fornybare energikildene (i tillegg til investerings- og driftskostnad) for å kunne sammenligne full samfunnsøkonomisk kostnad av disse energikildene med vannkraft, gasskraft og importert kullkraft. Dette kan gjøres ved overføring av verdier fra utenlandske studier (for eksempel ved å gjøre metaanalyse av tidligere norske og utenlandske Stated Preference-undersøkelser (Contingent Valuation og Choice Experiments) og Eiendomsprisstudier (Hedonic Price-studier), og ved å gjennomføre nye slike verdsettingsstudier i Norge. Satsing på ulike energikilder gir også ulikt behov for kraftlinjer, som også medfører store miljøkostnader pga landskapsestetiske effekter og ulike helseeffekter av elektromagnetiske felt.

Temaer er aktuelle kun for masterstudenter ved Handelshøyskolen, NMBU

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Verdsetting av marine- og kyst-økosystemtjenester i samfunnsøkonomiske analyser

Mens det finnes mange studier som verdsetter ulike terrestriske og akvatiske økosystemtjenester, er det foretatt få verdsettingsstudier av marine- og kystnære økosystemtjenester. Økosystemtjenestene som våre kyst- og havområder gir er truet av hytte- og boligbygging, vindkraft, oljesøl fra skip, forsøpling, næringsvirksomhet (akvakultur, trålfiske, rorbudrift), forurensede bunnsedimenter osv. I samfunnsøkonomiske analyser (Nytte-kostnadsanalyser) av prosjekter og politikk/virkemidler forsøker man fortrinnsvis å sette økonomisk verdi på alle samfunnsøkonomiske kostnader og nytte-effekter, inklusive effekter på fellesgoder som miljøkvalitet, biologisk mangfold, landskapsbilde/estetikk, kulturminner/kystkultur slik at disse kan inkluderes i analysen på lik linje med effekter på private goder som verdsettes v.h.a markedspriser.

I tilknytning til NFR (Norges Forskningsråd) prosjektet «COAST-BENEFIT: Ecosystem Service Valuation For Coastal Zone Management: From Promise to Practice» (2016-2019) som HH-NMBU deltar i som partner (og som koordineres av Universitetet i Stavanger) skal det gjennomføres case-studier av prosjekter hvor det kan være konflikt mellom utbygging/utnytting og bevaring av økosystemtjenester knyttet til kyst og hav. I den sammenheng ønskes det gjennomført verdsettingsstudier av utvalgte case-studier, og de vil egne seg godt som Masteroppgaver.

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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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Climate tax on beef

Agriculture is responsible for a significant share of Norwegian and global greenhouse gas emissions, especially related to cattle production. Emissions from this activity is difficult to tax directly, however. An alternative may therefore be to put a tax on the consumption of beef and possibly other meat products. Which effects will this have on emissions in Norway and abroad? And how will it affect activity in the Norwegian agricultural sector?

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**Master thesis: Multiple organic stressors on industrial fishery
– a bioeconomic approach**

Ocean health is declining and jellyfish are becoming more abundant in many regions Norway. Fish farming interacts with jellyfish blooms will worsen the water quality, marine ecosystem and habitats. One of the important parts of the project is to study

- What are the economic impacts of jellyfish bloom and aquaculture on industrial fishery and recreational fishery?
- What are the main policy and management implication for aquaculture planning when the jelly bloom incidents are considered?

Bioeconomic modelling could be the main tool. The master thesis will be under the project “Combined effects of multiple organic stressors from jellyfish blooms and aquaculture operations on seafloor ecosystems” (JellyFarm) –funded by Norwegian Research Council.

We are looking for a master student who is interested in the research questions mentioned above and would like to write master thesis for the project. The student will get supervision from both NMBU and Norwegian Institute for Water Research (NIVA). We would like the student to start the study in spring 2018 or sooner. Please contact the following person if you are interested in.

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Who do you trust?

There are hundreds (thousands) of possible games to be played in a laboratory setting (university students in a (class) room), playing some version of a standard experimental game (public goods, ultimatum, etc.). The experiment should, however, be linked to a more specific problem, for example:

- Do football fans trust fellow supporters more than others? This could be done by playing a trust game with three groups: (i) supporters of team X, (ii) football fans in general, (iii) random group.
- Do students trust more fellow students in the same faculty?
- Do we trust more people with the same characteristics as ourselves (gender, nationality, ethnic, language/dialect, social class)

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Conditional contributions to public goods

One proposed way to solve the climate stalemate is through conditional commitments: “I’m willing to do more, provided that others also do more”. How strong is this effect? This can be tested using an economic experiment, for example, matching contributions affect the contributions in a public goods game.

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