Environment and Resource Economics

Estimating Social benefits of cleaning up contaminated marine sediments in the Norwegian Fjords.

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. A Stated Preference (SP) internet panel surveys (Contingent Valuation) have been conducted in selected fjords around the country to elicit people´s willingness-to-pay (WTP) to get these environmental improvements, and map 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 fjords to be cleaned up with the limited budget available.

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Estimating the environmental costs of on-shore 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 assesses, 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 an ongoing project a Norwegian Research Council (NFR) projects VALUECHANGE, 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 peoples preferences and 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 social benefits of avoiding invasive alien species. Case Red King Crab and Snow Crab in Norther Norway

Invasive alien species (IAS) have negative effects on native species and ecosystem services, but can also provide economic benefits in terms of commercial activities as in the case of fisheries for the Red King crab and Snow crab in the county Troms and Finnmark. As part of an ongoing Norwegian Research Council (NFR) projects PICO- Participatory modelling of integrated ecosystem-based management regime for invasive crabs; 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 e people´s willingness-to-pay (WTP) to avoid the negative ecosystem service damages these IAS represent, and what determines peoples 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 ecosystem service impacts with a high degree of uncertainty.

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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 by 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
The burden of proof: Bidding behavior for environmental management contracts and performance documentation
Many environmental management contracts entail quite large performance documentation costs. If contract holders are to document their performance, this is likely to increase bid sizes and hence the costs to society. The basic idea is that bidders can submit two types of bids, (i) where bidders have to document their performance to receive the contracted payment, and (ii) where the environmental protection agency conducts random checks on contract compliance. What are the conditions for each of the two contract types to be economically optimal from society's perspective.

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The cost of exemptions in climate policy
Norway's climate policies have to date been sector specific, and representatives for various sectors seek exemptions or less stringent polices for their respective sectors. What are the costs of such exemptions to society? This topic can be given several angles, like an empirical analysis of the costs to society from exempting one sector , or a more principal analytical approach.

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Environmental policy under spillovers
Several environmental policies have spillovers. An example of a positive spillover is how toll gates or increased fuel taxes reduce traffic volumes which lower other emissions like rubber and road dust. Spillovers could also be negative like the cases where reduced tillage lowers eriosion but increases the use of pesticides. How should such spillovers be included in benefit-cost analysis. This thesis topic can be made applied if two students write together and they complement the theoretical analysis with a study of a particular policy and the adjunct spillovers.

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Joint achievement of distributional and environmental policies?
A central discussion topic in the recent general election in Norway is how to improve the distributional impacts of environmental policies. There are two extreme positions in this discussion: (i) distribution should be part of environmental policy, and (ii) environmental policies should primarily focus on the environmental issues they are to solve while distributional issues should be resolved through other policy measures. Jan Tinbergen's seminal 1952 paper on general economic policy lends support to the second position arguing one needs one instrument for each objective. What are the arguments for these two positions in environmental economics, and what are the implications for environmental policy. This thesis topic is theoretically challenging. It is therefore recommended that students choosing this topic have taken ECN 275/375.

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Rules rather than discretion in environmental policy
The paper "Rules rather than discretion: The inconsistency of optimal plans" (Kydland and Prescott, JPE 1977) influenced the macro economics literature. In environmental economics the insights from their paper have yet to be utilized. One reason for that is that our knowledge on many environmental issues tend to grow over time. An example of this is the UN climate panel reports, where there is only once thing that is certain - the severity of climate change increases with every new report. Under such settings, how can environmental policy be made (more) predictable, an important factor for long term investments to reduce climate gas emissions. This is a theoretical and challenging thesis topic. It is therefore recommended that students choosing this topic have taken ECN 275/375.

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Agriculture and agricultural policy
Monitoring animal welfare
In recent years there has been several reports of poor animal welfare and in extreme cases neglect or abuse, in Norwegian agriculture, most notably in the hog industry. The Norwegian Food Safety Authority (Mattilsynet) claims to have insufficient resources to monitor animal husbandry farms as often as they would have liked. This thesis topic looks at ways make the monitoring efforts of Mattilsynet more effective with their current budget. Possible approaches include reputation based monitoring or concentrate monitoring efforts to farms with indications of poor animal welfare. On the latter, a possible approach could be to identify such farms by utilizing existing data from slaughter houses on for example tail biting for pigs, dirty animals or animals with wounds.

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Possible topics in agricultural policy
There are several possible applied topics related to Norwegian agricultural policy. Many documents related to this topic are in Norwegian only. Topics in this area is therefore best suited for students with knowledge of Norwegian. Some of the topics currently discussed can be found on the web pages of th Norwegian Ministry of Food and Agriculture and various analysis applied research institutes/ like NIBIO, Ruralis, AgriAnalyse, and Norsk landbrukssamvirke.

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EU climate policy – Fit-for-55
The EU Commission has suggested several changes to it climate policy to comply with the new emission target for 2030
- Changes of the Emission Trading System (EU ETS)
- A new ETS for road transport and buildings
What are the economic consequences of these changes (emissions; emissions prices; costs)?
How does EU's climate policy interact with Norway's climate policy?
Suggested method: Combining economic theory with numerical simulations

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Is export of Norwegian gas good or bad for the climate?
Will Norwegian gas replace coal? Or renewables? Or gas from other countries? Or come in addition?
Is it possible to reduce oil extraction without affecting gas extraction?
Suggested method: Combining economic theory with numerical simulations
Differentiated tariffs on public transport
Would it be optimal with more differentiated tariffs on public transport?
Oslo area: Same tariff all day(s)
Low capacity utilization in evenings and weekends – high in rush hours
Optimal for society? For the transport company?
Suggested method: Survey? Combined with some economic theory?

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NFR-project: ENABLE – Enabling the green transition in Norway
Primary goal: "Identify conditions for energy and transport policy packages and measures that are both effective and socially accepted in a Norwegian context, thereby helping Norway to meet its ambitious targets to cut GHG emissions while at the same time provide a secure supply of energy and meet other societal goals"
Suggested method: Survey? Combined with economic theory?

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External project by Zero and others («Systemsmart energibruk»)
Consider possibilities for smarter use of energy barriers to overcome in order to realize good solutions.
https://zero.no/hva-er-systemsmart-energibruk/
External project by the company Bruse
Owned by Hallingdal Kraftnett and Hemsedal Energi
The company is developing fiber network in Hallingdal and wants to assess the economic impacts for the local economy in Hallingdal (commercial, residents, cabins etc)
Competition authority:
https://konkurransetilsynet.no/forskning/tema-for-masteroppgave/

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