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PhD project: “International seafood trade liberalisation”

Traditionally, liberalisation of international seafood trade is analysed on the basis of the Neo-classical theoretical tradition applied to international economics. Within this tradition, seafood is regarded as a normal good and the presence of international trade is explained by differences in factor endowment and by comparative advantages. The consequence is that a social optimum can only be reached in the case of free trade, that is, on a totally liberalised international market.

However, in environmental and resource economics, fish stocks are not regarded as a normal good, but as a limited renewable resource with externalities in the production process. This implies that the fishery of the single fisherman affects the catch potential of the other fishermen and, therefore, the consequence of an open-access fishery is overfishing. As a consequence, the assumption for a social optimal situation is the presence of fisheries management. Therefore, an international social optimal situation can be obtained by international seafood trade liberalisation, by assuming the presence of fisheries management.

Recent research links international economics and environmental and resource economics by analysing international trade with a limited renewable resource that is not managed optimally. Brander and Taylor (1997ab and 98) show that advantages with free trade with limited renewable resources, that are not managed optimally, exist only in some cases and for certain types of countries. Therefore, liberalisation of trade in limited renewable resources, that are not managed optimally, can result in welfare losses.

Within fisheries, Hannesson (1999) shows that in a seafood exporting country where fish stocks are over-fished, liberalisation of international seafood trade can imply a welfare loss to the country, given that the fishery is not managed optimally. The reason is that the liberalisation can increase demand and prices, and subsequently imply further overfishing. Emami and Johnston (2000) analyse this issue in a General Equilibrium Model.

The theory that this research field is based upon can be compared with a similar issue within environmental economics, where freer trade in general implies international specialisation and increased transport, which again will cause pressure on the environment.

The purpose of this Ph.D. is **to analyse the effects of international seafood trade liberalisation** from a welfare economic perspective, in the short and long runs, on different aggregation levels, and for producer and consumer countries. Moreover, the purpose is to analyse the effects of alternative supranational regulations of seafood markets and to develop models to be used for consequence assessments on international seafood markets in the short and long runs.

Liberalisation of international seafood trade consists of the tariff reductions and the contrary increase in non-tariff barriers (standards and eco-labelling in relation to quality, safety, environmental concerns and sustainability). Aggregation levels are global, the EU as a net-consuming area and Denmark as a net-producing country.

The Ph.D. consists of a theoretical part, an supranational trade regulatory part, a model developing part and a model application part.

Theory

The purpose is to make theoretical consequence assessments of liberalisation of international seafood trade, given optimal and non-optimal fisheries management. Based on these assessments, the distribution of welfare benefits/losses between countries are analysed, dependent on whether the countries are seafood net-consumers or net-producers of seafood as well as dependent of the size of the international markets. The consequences of international seafood trade liberalisation are analysed on three aggregation levels:

1. Globally, covering both net-consumer and net-producer countries/areas.
2. The whole EU as a net-consumer country.
3. Denmark as a net-producer country.

Supranational trade regulation

The purpose is to identify in the situations the social optimum are reached by international seafood trade liberalisation and in which situations supranational regulations, for example in the form of binding international agreements, are necessary to obtain the social optimal situation.

The idea is that countries/areas, which are not using fisheries resources in a social optimal sense, can be stimulated or sanctioned to do so by supranational seafood trade regulations. For example, a tariff or a ban on import from countries that do not use their fish resources in a sustainable way can be introduced. The idea follows the “polluter pays principle” from the environmental policy and in fisheries it means that countries that are overfishing have to pay “the price” of this overfishing.

Alternative supra national regulatory tools, which for example could be managed by the WTO, are discussed where their presence are assessed to be necessary in order to obtain the social optimal situation. The consequences of the alternative regulatory tools are analysed on the three aggregation levels.

Model development

The purpose is to model alternative international seafood trade policies, given optimal and non-optimal fisheries management. Models are developed for the three aggregation levels.

The starting point is traditional consumer theory applied on fisheries, as summarised in Nielsen (1999 and 2000). Ordinary demand models, built on a causality where an exogenously given price determines quantities, and inverse demand models, where an exogenously given quantity determines prices, are applied on seafood markets in the literature. Inverse demand models will be

developed further, as these are presumed to be more realistic than ordinary demand models, since the landed quantities are presumed to be determined by bio-economic conditions, weather, fisheries management etc. and only to a limited extent by the prices. Microeconomic models will be developed for short run assessments based on these models, and in this context the issue regarding product aggregation on international and interspecies integrated seafood markets will be explicitly addressed in relation to the three aggregation levels.

Moreover, market structure and integration will be defined in the models using market delineation studies (co-integration analysis of price series by testing “the Law of One Price”) with the purpose to create the strongest possible microeconomic basis for the aggregated models.

Inverse demand models and knowledge of market integration will in combination with knowledge of consumer behaviour and preferences, from the traditional economic literature and from the marketing literature, form the basis for the construction of partial and general equilibrium models, which can be used for consequence assessments in the long run.

Model application

The purpose is to use the developed models for case studies of consequences and for welfare analysis of international seafood trade liberalisation, given optimal and non-optimal fisheries management alternatives on the three aggregation levels.

Methods

The theoretical part of the Ph.D. is built on Neoclassical economic theory applied on international economics and combined with recent developments in environmental and resource economics. Traditional microeconomic tools are used for the analysis.

The empirical part includes time series econometrically used for estimation of demand models with the purpose to build forecast models in the short run. Moreover, the empirical part includes the development of partial and general equilibrium models. Market integration techniques (co-integration of price time series) are used to define integration on international and interspecies seafood markets and industrial economic indices are used to define the nature of foreign trade.

Provisional essay titles

“EU codfish markets: Market Integration, Product Aggregation and Demand.”

“Liberalising seafood trade in OECD countries: Implications for the product composition”

“Seafood trade and fisheries management: implications of liberalising trade with a transboundary

Planned activities

For the period September 2001 to March 2002, Max will be on placement at the Food, Agriculture and Fisheries Department in the Organisation for Economic Co-operation and Development, Paris, participating in the Fisheries Market Liberalisation project.