

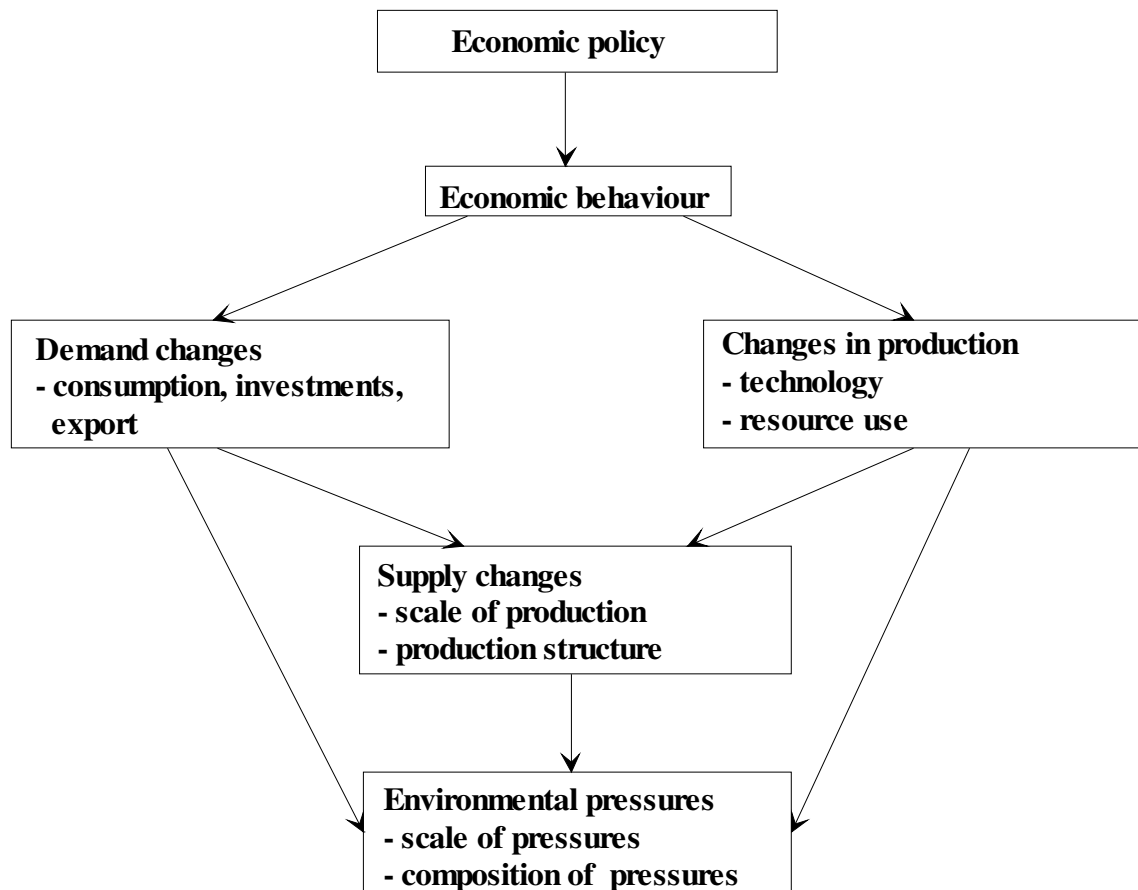
English summary

This report describes the evaluation of the environmental consequences of economic policy in practice. The frame of reference is the so-called DPSIR cycle. Economic policy influences the economic activity of the society (Driving force). This affects the environment through emissions and physical pressure (Pressure). These cause changes in the state of the environment (State) that influences the welfare of the population (Impact). The society reacts on this through changes in behaviour and policy (Response). Changes in economic policy might be one of the responses.

Economic policy is defined as changes in different categories of economic means. These categories comprise public consumption and investment, general taxes and duties, specific duties, subsidies, labour market measures and inviting tenders for public works. All changes in these measures will affect the economic activity and with it, the environment.

In this report the environmental consequences are restricted to emissions and physical pressures. These consequences follow directly from the changes in economic activity. The description of the final consequences for the state of the environment and the welfare needs further information about transport of the emissions and about the environmental changes caused by depositions and about how these changes affect living conditions. National economic activity affects emissions and physical pressures at home and abroad. Mainly methods for specification of national emissions and pressures are described in this report.

Description of the environmental consequences of economic policy comprise the elements shown in the figure below:



First of all changes in economic policy affects economic behaviour, i.e. demand for goods and services and choice of technology and resources in the production process. As a consequence of this the production and supply of goods and services also changes. All these changes in economic behaviour affect both the scale and the composition of environmental pressure.

The different categories of economic policy affect economic behaviour and thereby environmental pressure in different ways. An increase in public consumption and investments generally means greater activity in this sector and in the sectors that supply goods and services for the public sector. As the labour supply presumably is not affected in the long run the activity in other sectors will decrease. In contrast to this an increase in general taxes and duties will affect the labour supply and the general economic activity negatively. Specific duties and subsidies may also affect the general activity but will most often also, to a greater degree, affect the economic structure. These different activity changes will each have their specific environmental consequences.

To quantify the behavioural and environmental consequences it is necessary to use economic models. In this report different Danish models are described.

The input output tables of the Danish national accounts now comprise eight different kinds of airborne emissions: CO₂, CO, CH₄, SO₂,

NO_x, N₂O, NH₃ and NMVOC. If the changes in economic activity are known the emission coefficients can be used to quantify the environmental consequences of changes in production and consumption of different goods and services as well as changes in the use of input in different economic sectors. Work is still going on to include more environmental pressures in the input output tables.

In Denmark the so-called ADAM model is most often used to analyse the changes in economic activity caused by economic interventions. The ADAM model is a national macroeconomic model. In recent years the model has been extended with so-called sector models that are more disaggregated than the main model. The extensions comprise the agricultural sector, the energy sector and the waste sector. The more detailed description of the economic activity in these sectors has made the ADAM model better suited for environmental analysis. The emission information of the input output tables is now an integrated part of the ADAM model. As these tables are extended and as the model becomes still more disaggregated it will be even more suited for environmental economic analyses.

In addition to the ADAM model several specific models have been developed for the agricultural and transport sectors respectively. These models are highly disaggregated both with respect to the production and use of resources in the two sectors and with respect to the geographical distribution of the activities. Therefore they are very well suited for environmental analysis.

Finally the report describes the main steps in the procedure for the evaluation of the environmental consequences of economic policy:

1. Specification of the economic policy intervention.
2. Specification of the initial economic activity and environmental pressure.
3. Description of changes in the economic activity following the intervention - qualitative descriptions as well model based quantitative analysis if possible.
4. Description of environmental consequences at national level - based on information from the input output tables, environmental information included in the national economic models and specific knowledge of the environmental pressure of the different economic sectors.
5. Description of environmental consequences at economic sector level - based on analysis with the economic sector models and specific sector knowledge about environmental pressures.
6. Evaluation of changes in the state of environment and living conditions following the changes in environmental pressures.
7. Evaluation of possible countermeasures against the environmental consequences.