

Summary

The aim of this PhD thesis was to calculate the cost-effectiveness of organic farming in achieving environmental policy targets compared to single-agri-environmental policies.

Using a theoretical model, it was demonstrated that financial support for organic farming does not in principle contradict the Tinbergen Rule, even if there are other targeted policy measures which are more cost-effective in achieving specific environmental goals. Hence, organic farming should be included as an option within a mix of other policies as long as its cost-effectiveness with respect to the overall set of policy goals is superior to that of a combination of other policy instruments.

The cost-effectiveness of agri-environmental policies can be understood as a function of policy uptake, environmental effects, and public expenditure. Taking the Swiss agricultural sector as an empirical case study, both the costs and effects of organic farming and other single agri-environmental measures were calculated at sector level. Therefore, the economic sector model FARMIS was extended by three modules encompassing a) life cycle assessments for fossil energy use, biodiversity and eutrophication, b) public expenditure, including policy-related transaction costs, and c) uptake of agri-environmental policies.

The calculations revealed a slightly higher abatement cost with organic farming of 14 CHF/ha for a 1 % average improvement in the environmental indicators, compared to a combination of three single agri-environmental policies (11 CHF/ha), including both extensification of arable land and meadows. In view of total public expenditure on agriculture of 2 to 3 kCHF per ha in Switzerland, these differences can be understood as marginal. Sensitivity analyses confirm that the cost-effectiveness of organic agriculture and combined agri-environmental policies is very similar. Thus it is concluded that financial support for organic farms in Switzerland is economically sound in view of the provision of public goods.