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Subjective beliefs about the impact of a CO2 tax on agriculture

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Abstract

Denmark is set to become one of the first countries in the world to adopt a CO2 tax on agricultural emissions to regulate greenhouse gas emissions from agriculture. Recently, an expert group, established by the Danish government, published its final report suggesting various models of a CO2 tax on agriculture. These models involve not only a tax on all greenhouse gas (GHG) emissions but proposes a mix of policy instruments including direct support to technological innovations and farm level agricultural subsidies to adopt climate reducing practices. However, there are divided opinions among politicians and interest groups, and uncertainties among the farming community about the outcome of the ongoing negotiations with stakeholders on how to implement the GHG tax. For example, ongoing resistance includes rallies opposing the introduction of the CO2 tax. Major concerns from the farming sector include potential reductions in employment, agricultural production, and value of land. Misperceptions about the impact of a CO2 tax on agricultural emissions may contribute to this resistance. Farmers may overestimate the tax's impact on agriculture, and this may influence their farm level decision-making. In this study, we aim to examine farmers' subjective expectations about the future impacts of the CO2 tax, their support for the implementation of the tax including various compensation mechanisms and their planned mitigation responses.

To understand farmers' subjective beliefs about the future impact of the CO2 tax on agriculture. we will more specifically investigate: a) whether there are systematic differences in farmers' subjective expectations about the future impact of the CO2 tax on the agriculture sector; b) whether and how respondents revise their expectations when provided with information that differs from their initial beliefs, based on expert predictions such as those from estimates for the green tax reform; and c) whether farmers' expectations about the impacts of the CO2 tax on aspects like employment and land prices influence their support for the tax and their investment decisions in GHG mitigation technologies.

We employ a survey experiment to address our research questions. The study design consists of the following steps: 1) eliciting respondents' expectations about the impact of the CO2 tax, 2) providing information based expert estimates, 3) re-eliciting farmers' expectations, and 4) measuring intended, self-reported, and actual behavior. The design is based on 2x2 approach, examining both the most stringent and least stringent CO2 tax rates. We use incentivized belief and resistance measures. We will present preliminary results from a representative sample of 1,000 farmers.