

Do public policies promote a better balance between the economic and environmental performance of farms?

Presentation

Today's agriculture faces major challenges, including the need to ensure a sustainable and sustainable supply of food supply to a rapidly growing world population. Faced with this challenge, an improving agricultural productivity by ensuring that the integrity of the environment is preserved and necessary. It involves an evolution towards more input-efficient practices (energy, pesticides, fertilizers) without compromising the economic profitability of the farms. In order to facilitate the transition to these agro-ecological practices, the public authorities have designed payments for environmental services (agri-environmental schemes), and introduced regulatory mechanisms (public grants conditional to good environmental practices, regulation on the pesticides use).

This thesis aims to evaluate the effects of these agri-environmental policies both on economic and environmental performance. Previous work in agri-environmental policy evaluation has focused on evaluating independently of the economic (Arrata and Sckokai, 2016) and environmental (Chabé-Ferret and Subervie, 2013) of these policies. Thus, its potential simultaneous effects on both components have been neglected.

This raises the question of (i) whether the implementation of agro-ecological practices implies a decrease in farm productivity, so that there is a trade-off between agricultural performance and environmental performance, or on the contrary (ii) if there are synergies between agro-ecological practices and agricultural productivity?

The literature on productivity and efficiency in agriculture, some studies (e. g. Picazo-Tadeo et al., 2011) have focused on analysing the impact of agri-environmental policies on levels of both economic and environmental performance. To assess this impact, the authors of these studies analysed the determinants of performance (or eco-efficiency) levels including the percentage of areas subject to agri-environmental payments, by example. However, these analyses do not allow us to assess the additional impact of the programs agri-environmental because they do not take into account farmers' self-selection to these voluntary programs.

The novelty of our approach consists in associating evidence based methods to measure the additionality of agri-environmental policies with methods for assessing farm performance. Our approach to assessing the economic and environmental performance of operations will lead us to use methods of estimation by efficiency frontier such as the DEA (Data Envelopment Analysis) approach proposed by Charnes et al (1978) and some of its extensions that take into account the environment (see Zhou et al. (2008) or more recently Dakpo et al. (2016)). The DEA approach will be extended through the use of quasi-experimental methods (double-difference matching type) in order to control farmers' self-selection in the adoption of agri-environmental measures.

The thesis will help to understand the role of agri-environmental policies on the performance of farms both in economic (based on an analysis of their overall productivity of production factors) and

environmental (based on an analysis of the degree of use of chemical inputs and/or the reduction of the carbon impacts of production) dimensions.

Contribution

The main contribution of the thesis is:

- i) to analyse the interactions between economic and environmental performance,
- (ii) assess whether agri-environmental policies are changing the nature of these interactions (arbitration, synergy). To do this, we combine the additionality measurement approaches of agri-environmental policies with methods for assessing farm performance.

Location and supervision

The thesis will be carried out at [CESAER](#), in Dijon (France). The thesis will be supervised by Pr. Stephane Blancard (AgroSup Dijon) and Lionel Védérine (INRA).

How to apply

All information to apply is here:

https://www.adum.fr/as/ed/voirproposition.pl?langue=fr&site=eddgep&matricule_prop=26688#version

Contact

We invite all candidates to contact S.Blancard (stephane.blancard@inra.fr) and L.Védérine (lionel.vedrine@inra.fr) before application.

References

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