Direct Payments, Farm Survival, and Strategic Farm Creation: The Case of Large-Scale Agricultural Structures in East Germany

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Introduction

The future of direct farm support under the Common Agricultural Policy (CAP) of the European Union (EU) is discussed controversially. It is particularly questioned, whether direct payments have the potential to raise farm incomes, and thus increase the probability of farm survival. **Two patterns are discussed in the literature regarding the impact of direct payments**:

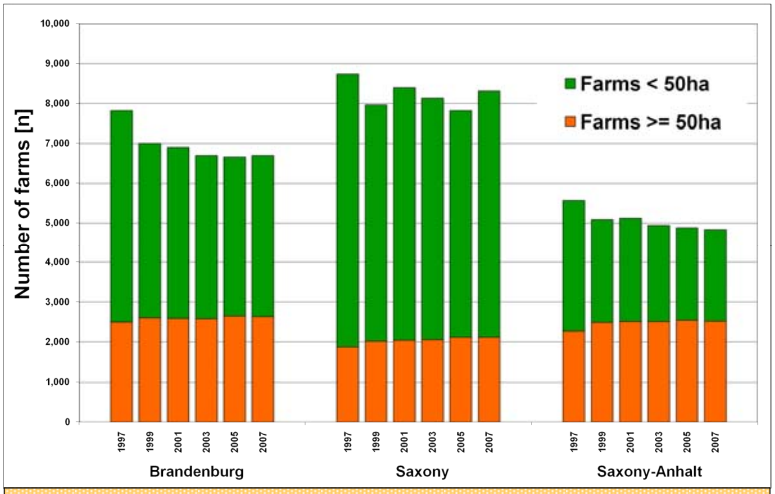
- ► **Acceleration** of structural change (Roberts and Key 2008)
- ► **Conservation** of farm structures (Breustedt and Glauben 2007)

Whether or not farms are affected heterogeneously by direct payments appears to be of central importance (Ciaian and Swinnen 2009).

The East German agricultural sector provides us with an ideal framework for the investigation of this issue, as it reveals a highly heterogeneous farm structure, with some large co-ops operating more than 90% of the agricultural area that receive direct payments per farm far above the EU average.

Objectives

- Do CAP direct payments have a different impact on farms of different size classes?
  → In the context of East Germany, we postulate that **large farms benefit more from increasing direct payments than smaller ones**
- How did the recent reforms of the CAP, including decreasing payments for large farms, affect farm structure?
  → We will test whether **strategic farm creation** in terms of farm splitting occurred in East German agriculture **to circumvent payment caps**



Farm structure in the East German states of Brandenburg, Saxony, and Saxony-Anhalt

Source: Destatis (2009). Authors' calculation.

Methods

We specify the following dynamic fixed effects model to estimate the **impact of CAP direct payments on regional farm numbers**

$$y_{i,t} = \gamma y_{i,t-1} + x'_{i,t}\beta + \delta d_{i,t} + \pi r_t + \eta_i + \varepsilon_{i,t}$$

$y_{i,t}$ … Number of farms in region i at time t
$x_{i,t}$ … Vector of exogenous regressors controlling for market mechanisms
$x_{1i,t}$ … land rents
$x_{2i,t}$ … agricultural output price index
$x_{3i,t}$ … agricultural input price index
$d_{i,t}$ … Regionally disbursed direct payments
r_t … Dummy variable for the 2003 reform of the
η_i … Unobserved, time invariant regional effect
$\varepsilon_{i,t}$ … Random disturbance

- ► **δ denotes the net policy effect**
- ► **μ indicates the impact of the CAP reform**

•The dynamic model is estimated by means of a bias-corrected least square dummy variable (LSDVC) model that has recently been developed by Bruno (2005) for unbalanced macro panels with small N and T

•Our slightly unbalanced sample comprises biannual figures from 69 East German regions between 1995 and 2007

•For the impact evaluation of direct payments on heterogeneous farm structures we estimate the following three models:

1) Lhs-variable: total number of farms per region
2) Lhs-variable: number of farms smaller than 50 ha
3) Lhs-variable: number of farms equal to or larger than 50 ha

	LSDVC Model (1) Total farms		LSDVC Model (2) Small farms		LSDVC Model (3) Large farms	
Explanatory variables	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value
Lagged dependent variable	0,490 ***	0,000	0,519 ***	0,000	0,513 ***	0,000
Direct payments [million €]	-2,158 ***	0,000	-2,200 ***	0,000	0,044	0,734
Agricultural output price index	2,869 ***	0,000	3,074 ***	0,000	-0,181 **	0,028
Agricultural input price index	0,232	0,559	0,427	0,291	-0,122	0,269
Land rents [€/ha]	-0,083 **	0,031	-0,083 **	0,032	-0,006	0,544
Reform Dummy	2,901	0,373	0,133	0,967	2,628 ***	0,004

Regression estimates: Policy impact on regional farm structure

Note: Bias correction initialized by Arellano-Bond estimator. Bias approximation is carried out by the first order leading term of the LSDV bias. Bootstrapped standard errors using 50 iterations (cf. Bruno 2005). All models include 69 regional dummies. *** (**, *): significant at the 1% (5%, 10%) level.
Source: Authors' calculation.

Results and Conclusions

- **Increasing direct payments led to significant structural change** in East German agriculture between 1995 and 2007, revealing a **heterogeneous impact on farms of different size** classes
  → Number of farms smaller than 50 ha decreased
  → Larger farms consolidated
  Accordingly, **large farms increasingly benefit from higher direct payments** compared to smaller ones
- The **reform of the CAP led to strategic farm creation**
  → Number of large farms significantly increased in connection with the implementation of the 2003 reform of the CAP
  → **Large East German farms split up in smaller units** to circumvent existing and future losses in governmental support
- Favorable output prices and decreasing land rents led to an uptake of small farms

References

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