

Impact of Rural Development Policy on Economic and Employment Growth in Germany

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1. Scope of research

- Ex-post Evaluation 2007-2013
- Rural Development (RD) Plans

Impact on economic and employment growth of ...

- 6 Federal States in Germany
- Projects implemented 2007-2015

Impact indicators of EU-Com

- Additional gross value added (by sectors)
- Additional jobs (by sectors)



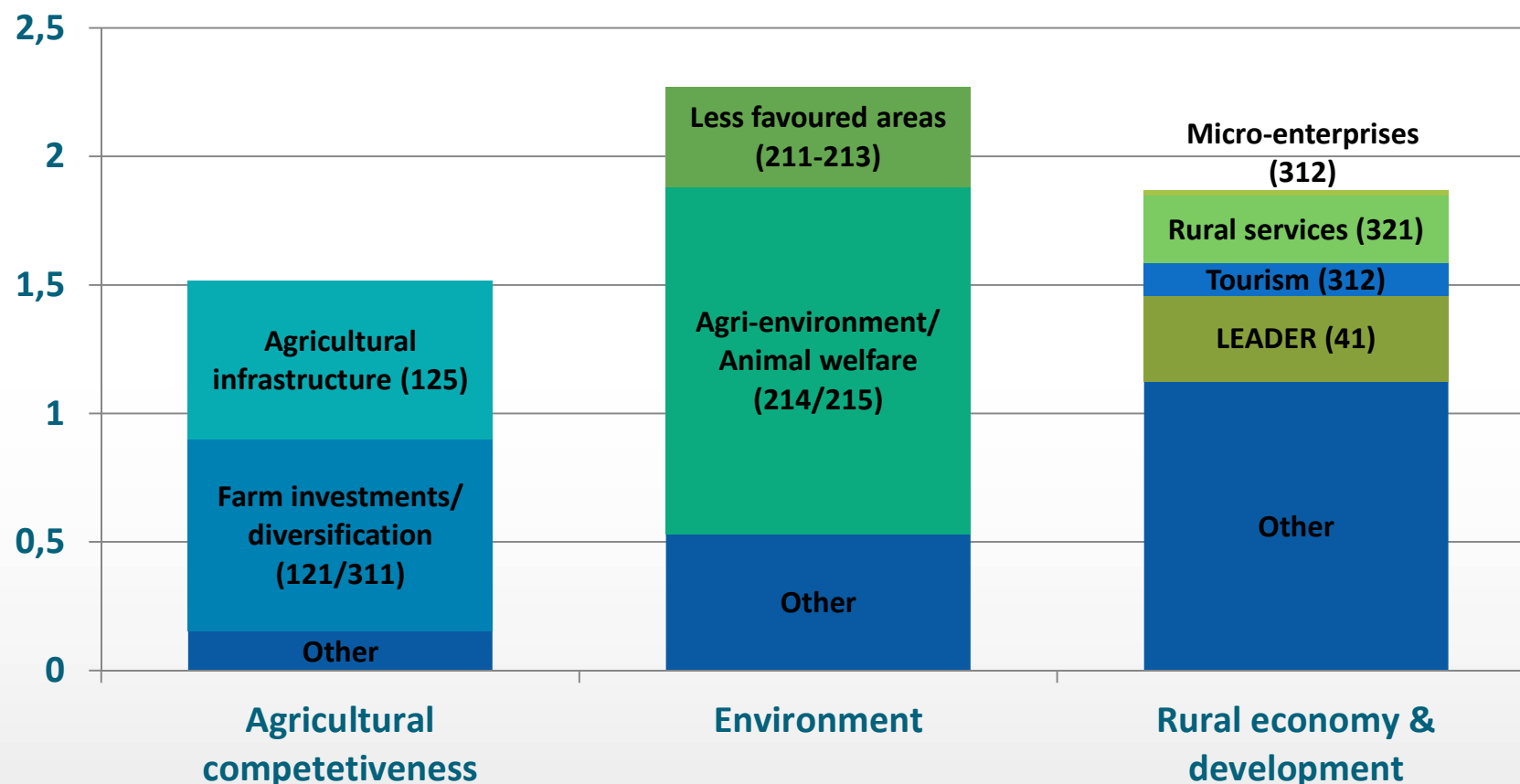
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2. RD support and expected impacts

- Public spendings to relevant RD measures

Public spendings 2007-2015 (total: 5.7 Billion Euro*)



* Spendings in 6 States, excluding spendings for coastal protection, flood prevention and technical assistance.

2. RD support and expected impacts

- Expected impacts on growth and employment

1. RD programmes are not designed to induce economic growth

- Emphasis on primary sector, environment and rural infrastructure
- Impacts on growth and employment are – at best – side effects

2. Impacts on primary sector and rural economy

- Primary sector: **Small**, but without relevance for overall growth
- Rural economy: **None**, since enterprises/related infrastructure are hardly targeted

3. Impact on aggregated growth in the EU (Europe 2020) possibly **negative**

- Tradeoff between growth and convergence (sectoral, regional)
- RD incentives keep production factors in less productive sectors (regions)

3. Methods and data

- Micro- und macro perspective (Midmore et al. 2010)



Micro perspective

- *Average Treatment Effect on the Treated (ATT)*
- „Working“ of single measures
- No adequate controls > ATT is biased
- No consideration of equilibrium effects



Macro perspective

- *Average Treatment Effect (ATE)*
- Relates impacts to baseline trend
- Only works for „big“ measures
- Consideration of equilibrium effects possible

3. Methods & data

- Methods

Theoretical model: Theory of causal effects (Rubin 1974)

$$ATE = E(Y_1 - Y_0 | X) = E(Y_1 | X) - \underline{E(Y_0 | X)} \quad \text{Potential non-treatment outcome}$$

ATE = Average Treatment Effect

Y_1 / Y_0 = Outcome with/without treatment

X = Conditioning variables

Empirical model: Two-step GMM (Arellano & Bond 1991)

$$Y_{it1} = \alpha Y_{it-1} + \delta X_{it} + \gamma D_{it} + \varepsilon_{it}$$

$$\underline{\hat{Y}_{it0}} = \hat{Y}_{it1} - \gamma D_{it} \quad \text{Estimated non-treatment outcome}$$

D = RD spendings (in Euro)

i = Labour market regions t = Year

3. Methods and data

- Data

Balanced panel data

- $i = 101$ labour market regions
- $t = 11$ years (from 2000 to 2011)

Regional economic accounts & other regional data (open access)

- Gross value added/Workforche by sector (WZ 2008, A 17)
- Agricultural land, gross wage, inhabitants etc.

RD treatment (source: paying agencies)

- Public RD spendings by measure
- Private RD spendings are not considered > spent anyway

4. Empirical results

- Impact on gross value added (estimated coefficients)

Explanatory variables	Unit	Explained variable: <i>In Gross value added (GVA)</i>			
		Primary sector	Primary sector	Non-primary sectors	All sectors
<i>In</i> GVA sector (t-1)	PPS	0.753 ***	0.760 ***	0.947 ***	0.950 ***
<i>In</i> Labour force sector	FTE	0.216 ***	0.205 ***	0.065 **	0.061 *
<i>In</i> Agricultural area	ha	0.293 ***	0.281 ***		
Share primary sector on total GVA	%				0.004 *
<i>In</i> CAP direct payments	Euro	-0.203 ***	-0.195 ***	-0.002	-0.005 **
<i>In</i> Farm investments/diversification (121/311)	Euro	0.003			
<i>In</i> Agri-environment/Animal welfare (214/215)	Euro	-0.024 ***			
<i>In</i> Agricultural competitiveness (121/311, 125)	Euro		0.006 **	0.001	0.001
<i>In</i> Environment (211-215)	Euro		-0.023 ***	0.003	0.003
<i>In</i> Rural development (123, 312, 313, 321, 41)	Euro			0.0001	0.00001
<i>In</i> Structural funds	Euro			-0.001	-0.0001
Constant		2.956 ***	2.873 ***	0.492 *	0.534
Observations	N	1,097	1,097	1,097	1,097
Hansen Test		93.8	94.2	86.41	85.98
AR(2) Test		-1.54	-1.42	0.99	1.00

*** p<0.01, ** p<0.05, * p<0.1.

Source: Own calculation, Model System-GMM, STATA (xabond2).

4. Empirical results

- Impact on workforce (estimated coefficients)

Explanatory variables	Unit	Explained variable: <i>In Workforce</i>			
		Primary sector	Primary sector	Non-primary sectors	All sectors
<i>ln</i> Work force (t-1)	FTE	1.264 ***	1.276 ***	0.968 ***	0.990 ***
<i>ln</i> Work force (t-2)	FTE	-0.489 ***	-0.523 **	-0.302 *	-0.250
<i>ln</i> Work force (t-3)	FTE	0.194 **	0.219 **	0.083	0.071
<i>ln</i> Gross wage	Euro	-0.014	-0.012	0.021	0.019
<i>ln</i> Population	Persons			0.390 *	0.287
<i>ln</i> Population density	Pers./qkm			-0.038	-0.019
Share of primary sector workforce on total	%			-0.012 ***	-0.007 **
<i>ln</i> Agricultural area	ha	0.142	0.013		
<i>ln</i> CAP direct payments	Euro	-0.002	-0.001	-0.001	-0.001
<i>ln</i> Farm investments/diversification (121/311)	Euro	0.001			
<i>ln</i> Agri-environment/Animal welfare (214/215)	Euro	0.007 **			
<i>ln</i> Agricultural competitiveness (121/311, 125)	Euro		0.001	0.0000	-0.0001
<i>ln</i> Environment (211-215)	Euro		0.007	-0.001	-0.001
<i>ln</i> Rural Development (123, 312, 313, 321, 41)	Euro			0.0001	0.0001
<i>ln</i> Structural funds	Euro			-0.0002	-0.0002
Observations		808	808	808	808
Hansen Test		43.6 *	44.37 *	49.69 **	48.49 **
AR(2)		-0.74	-0.63	0.41	0.12

*** p<0.01, ** p<0.05, * p<0.1

Source: Own calculation, Model Difference-GMM, STATA (xabond2).

5. Summary and discussion

Ambivalent and small impacts on primary sector

- Farm and infrastructure investments increase GVA (+ 0.6 % p.a.)
- Agri-environment measures decrease GVA (-2.4 % p.a.) and increase employment (+ 0.7 % p.a.) > „Temporary impacts“

No impact on rural growth and employment

- Results do not change if rural departments (Nuts3) area considered

Much ado about nothing?

- Growth objectives (Europe 2020) are rhetoric of RD policy
- Not grounded on RD measures with realistic potentials

Thank you for your intention!

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Summary statistics

Variable	Unit	Obs	Mean	Std. Dev.	Min	Max
<i>In</i> GVA primary sector	PPS	1.097	17.640	0.113	11.543	19.769
<i>In</i> GVA all sectors	PPS	1.097	22.498	0.866	20.837	25.352
<i>In</i> GVA non-primary sectors	PPS	1.097	22.484	0.870	20.832	25.349
<i>In</i> Labour force primary sector	FTE	1.097	7.447	0.921	4.174	9.423
<i>In</i> Labour force all sectors	FTE	1.097	11.553	0.809	10.055	14.110
<i>In</i> Labour force non-primary sectors	FTE	1.097	11.528	0.819	10.022	14.101
<i>In</i> Agricultural area	ha	1.097	10.750	1.086	7.221	12.926
Share primary sector on total GVA	%	1.097	1.400	1.298	0.001	7.196
<i>In</i> CAP direct payments	Euro	1.097	16.379	1.202	12.027	18.964
<i>In</i> Farm investments/diversification (121/311)	Euro	1.097	12.327	3.146	0	15.943
<i>In</i> Agri-environment/Animal welfare (214/215)	Euro	1.097	13.451	1.374	0	16.319
<i>In</i> Agricultural competitiveness (121/311, 125)	Euro	1.097	13.153	2.985	0	16.756
<i>In</i> Environment (211-215)	Euro	1.097	13.952	1.232	9.026	16.545
<i>In</i> Agricultural competitiveness & Environment (121/311, 125, 211-215)	Euro	1.097	14.654	1.220	9.441	17.119
<i>In</i> Rural development (123, 312, 313, 321, 41)	Euro	1.097	8.091	6.082	0	16.725
<i>In</i> Structural funds	Euro	1.097	10.477	7.161	0	18.568

PPS = Purchase Power Standards, FTE = Full Time Equivalents, ha = hectare