

Has the agricultural productivity increased after European Union enlargements in Central European countries? Evidence from four countries' cereal production

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Electronic supplementary material (ESM)

Supplementary Table S1

Supplementary Table S2

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Table S1. Summary statistics of model variables – outputs and inputs: 2004–2017

Variable	Measure- ment units	Czech Republic		Hungary		Poland		Slovenia	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Cereals	EUR (2010)	277 755	384 879	174 708	288 598	16 625.1	52 660.1	4 764.57	8 489.85
Other crop output	EUR (2010)	189 987	269 354	122 109	247 655	13 012.6	53 604.4	15 747	19 379.1
Other farm output	EUR (2010)	149 378	337 588	191 386	792 281	21 202.3	87 256.1	31 266.3	33 500.8
Materials	EUR (2010)	494 988	717 197	348 510	962 911	33 703.2	123 067	37 903	32 710.3
Land	hectares	675.16	820.74	461.028	772.036	44.981	124.14	21.506 3	15.975 3
Labour	AWU	13.277 2	18.771 6	10.249 7	22.972 1	2.162 86	3.723 91	2.002 68	0.868 64
Capital	EUR (2010)	116 127	165 198	69 154.3	143 128	9 020.34	28 689.8	14 977.6	11 573.8

Source: EC FADN data

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Table S2. IDF country models – parameter estimates

Variable	Czech Republic		Hungary		Poland		Slovenia	
	Coef.	$P > t $	Coef.	$P > t $	Coef.	$P > t $	Coef.	$P > t $
<i>Cereals</i>	−0.517	0.000	−0.526	0.000	−0.387	0.000	−0.089	0.000
<i>Other crops</i>	−0.247	0.000	−0.243	0.000	−0.113	0.000	−0.232	0.000
<i>Other farm output</i>	−0.152	0.000	−0.153	0.000	−0.217	0.000	−0.346	0.000
<i>Land</i>	0.158	0.014	0.176	0.000	0.094	0.000	0.160	0.003
<i>Labour</i>	0.221	0.000	0.047	0.074	0.282	0.000	0.308	0.000
<i>Capital</i>	0.120	0.000	0.163	0.000	0.079	0.000	0.109	0.010
<i>Cereals</i> ²	−0.124	0.001	−0.096	0.015	−0.086	0.052	−0.095	0.000
<i>Other crop</i> ²	−0.073	0.000	−0.064	0.000	−0.042	0.000	−0.095	0.000
<i>Other farm output</i> ²	−0.052	0.000	−0.054	0.000	−0.074	0.000	−0.117	0.000
<i>Cereals</i> × <i>other crops</i>	0.040	0.029	0.049	0.010	0.011	0.469	0.024	0.196
<i>Cereals</i> × <i>other farm Output</i>	0.050	0.000	0.025	0.055	0.049	0.001	0.070	0.001
<i>Other crops</i> × <i>other Farm output</i>	0.010	0.280	0.006	0.481	0.012	0.096	0.073	0.000
<i>Land</i> ²	−0.188	0.500	−0.046	0.718	0.007	0.952	0.030	0.885
<i>Labour</i> ²	−0.162	0.237	0.081	0.264	0.178	0.012	0.097	0.366
<i>Capital</i> ²	0.103	0.072	0.106	0.000	0.021	0.616	0.095	0.052
<i>Land</i> × <i>labour</i>	0.327	0.024	−0.184	0.013	0.049	0.477	0.105	0.372
<i>Land</i> × <i>capital</i>	0.027	0.820	−0.012	0.814	0.024	0.692	0.106	0.229
<i>Labour</i> × <i>capital</i>	−0.025	0.717	0.010	0.740	−0.075	0.094	−0.213	0.001
<i>Time</i>	−0.009	0.005	−0.010	0.000	−0.008	0.000	0.009	0.023
<i>Time</i> ²	0.010	0.000	0.012	0.000	0.004	0.000	0.001	0.750
<i>Cereals</i> × <i>time</i>	0.008	0.046	0.004	0.329	−0.002	0.579	−0.008	0.035
<i>Other crops</i> × <i>time</i>	−0.003	0.284	−0.007	0.007	−0.001	0.688	−0.003	0.499
<i>Other farm Output</i> × <i>time</i>	0.006	0.002	0.002	0.388	0.002	0.143	0.007	0.153
<i>Land</i> × <i>time</i>	0.024	0.041	0.022	0.004	0.008	0.110	0.019	0.137
<i>Labour</i> × <i>time</i>	0.004	0.671	−0.015	0.005	0.000	0.984	−0.011	0.272
<i>Capital</i> × <i>time</i>	−0.004	0.478	0.001	0.814	−0.005	0.191	−0.015	0.080
<i>Cereals</i> × <i>land</i>	0.145	0.029	−0.099	0.055	−0.028	0.610	0.095	0.008
<i>Other crops</i> × <i>land</i>	−0.036	0.487	−0.008	0.797	0.024	0.243	0.059	0.362
<i>Other farm Output</i> × <i>land</i>	−0.070	0.032	0.004	0.867	0.024	0.324	−0.068	0.251
<i>Cereals</i> × <i>labour</i>	−0.102	0.058	−0.003	0.933	0.135	0.003	0.048	0.182
<i>Other crops</i> × <i>labour</i>	−0.001	0.977	0.012	0.601	−0.017	0.291	0.042	0.273
<i>Other farm Output</i> × <i>labour</i>	0.055	0.027	−0.034	0.012	0.011	0.488	−0.012	0.767
<i>Cereals</i> × <i>capital</i>	−0.014	0.615	0.001	0.967	−0.018	0.601	−0.081	0.002
<i>Other crops</i> × <i>capital</i>	0.048	0.037	0.007	0.516	−0.010	0.469	−0.042	0.241
<i>Other farm Output</i> × <i>capital</i>	−0.020	0.191	0.002	0.881	−0.011	0.504	−0.016	0.686
Constant	0.102	0.000	0.026	0.190	0.136	0.000	0.121	0.000
LFA	−0.083	0.000	−0.097	0.047	−0.056	0.000	–	–
Year 2008	−0.193	0.000	–	–	−0.068	0.000	–	–
Year 2009	–	–	0.120	0.000	0.075	0.000	–	–
AR(2) test (P -value)	−0.66 (0.508)		−1.77 (0.077)		1.83 (0.067)		0.96 (0.338)	
Hansen test (P -value)	239.00 (1.000)		351.14 (1.000)		1 335.34 (0.273)		164.56 (1.000)	

LFA – Less Favoured Areas

Source: Authors' estimates