

The Position of Organic Farming within the European Union's Agriculture (Selected Differences Existing Among Individual Countries)

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Abstract

This paper analyzes basic development trends in European Union's organic farming during the period 2005–2011. The analysis is based on data provided by EUROSTAT, IFOAM and FAOSTAT. Individual time series are analyzed through basic index, chain index, geomean, correlation analysis and elasticity analysis and logarithmical regression. The aim of this paper is to identify basic development trends in the following areas: organic land development; the number of organic farms; and the value of organic market development. Research also identifies existing differences among individual EU countries in the area of organic farming development. A part of the paper is also devoted to the relationship that exists between organic farming development and agricultural subsidies/supports in individual EU countries. The size of organic farmland increased significantly and also the number of producers increased. The significant organic farming growth can be demonstrated in majority of analyzed countries. It should be emphasized that high growth of organic farming size was obvious especially in the new EU countries. In general, it is clear that organic farming represents a specific market niche in the European agricultural market. Organic farming development is connected especially with the new consumption trends and also with the growth of individual countries economies and especially with the growth of income per capita in individual countries. The growth of organic farming is stimulated especially by the demand side of economy rather than by government subsidies. The conducted analysis proved much higher correlation and elasticity of organic farming sector performance in relation to individual countries' economy development than it is in relation to individual countries' government expenditures.

Keywords: organic farming, European Union, development, trend, GDP/cap, government expenditures, correlation, elasticity, characteristics, differences

Introduction

Organic farming is a form of agriculture that relies on techniques such as crop rotation, use of green manure, compost and biological pest control. Organic farming uses fertilizers and pesticides but excludes or strictly limits the use of manufactured (synthetic) fertilizers, pesticides (which include herbicides, insecticides and fungicides), plant growth regulators such as hormones, livestock antibiotics, food additives, genetically modified organisms human (European commission 2013) sewage sludge, and nanomaterials (Paull 2011a).

According to the International Federation of Organic Agriculture Movements – "Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved..." (Paull 2010; IFOAM 2008).

Since 1990, the market for organic products has been significantly growing and in 2011 its value reached almost \$60 billion. This demand has driven a similar increase in bio-managed farmland which has grown over the years 2001–2011 at a compounding rate of 8.9% per annum (Paull 2011b). As of 2011, approximately 37 million hectares worldwide were farmed organically, representing approximately 0.9 percent of total world farmland (Willer and Kilcher 2011).

While taking into account, the distribution of organic agricultural land by region, it can be claimed that the leader is Oceania – especially Australia. In this region we can find about 12.2 million hectares of organic land. Other regions have this hectareage: Europe 10.6 million hectares, Latin America 6.9 million hectares, Asia 3.7 million hectares, North America 2.8 million hectares and Africa 1.1 million hectares. With respect to Europe, it should be emphasized that the share of European Union on total European organic land area is over 93% (cc 9.5 million hectares) (IFOAM 2012).

The markets for organic products are strongest in North America and Europe, especially then in the European Union. North America participates in global organic food market by 49% and the share of Europe is about 47% (IFOAM 2012).

European Union's share in global organic food market is about 41%. This means that European Union represents one of the most important players on global organic food market. In general, it can be said that Oceania has almost one third of the global organic agricultural land, but its relative importance is decreasing. Europe, a region that has had a very constant growth of organic land over the years, has more than one quarter of the world's organic agricultural land and it is possible to expect that the growth of organic agricultural land areas will be much higher in the future especially because of EU's agricultural policy (Willer and Lernoud 2013).

During the last two decades the European Union changed the priorities of its Common agricultural policy (CAP) and, nowadays, the CAP is focused especially on multifunctional agriculture (Svatoš 2008). The important part

of this concept is also environmental protection (Boháčková and Hrabánková 2011). A part of this idea is also to support organic farming development. European agriculture and especially its organic part are heavily subsidized not only by individual EU members, but also through the EU budget (Gay and Offermann 2006; Margareta and Pentelescu 2005; Basek and Kraus 2011).

The result of applied policies together with changes in economy and life style is the constantly increasing share of organic farming in total EU's agriculture and also constantly increasing share of organic farming in EU's agricultural market (Park and Lohr 1996; Gilg and Battershill 1998; Haering, Vairo, Dabbert, et al. 2009). The paper analyzes basic development trends in the European Union's organic farming during the period 2005–2011. The aim of this paper is to identify basic development trends in the following areas: organic land development; the number of organic farms; and the value of organic market development. Research also identifies existing differences among individual EU countries in the area of organic farming development. A part of the paper is also devoted to the relationship that exists between organic farming development and agricultural subsidies/supports in individual EU countries.

Methodology

In this paper, period from 2005 to 2011 is analyzed. The analysis is based on data provided by EUROSTAT, IFOAM and FAOSTAT (data is conducted in current EUR prices). The analysed variables are the following: the organic land for agricultural purposes development (IFOAM), the number of organic farms development (IFOAM and EUROSTAT), the value of organic food market development (IFOAM), the value of organic products consumption per capita (EUROSTAT, IFOAM). Also, organic market development in the European Union is analyzed. For the purpose of this paper the EU is represented by 27 following countries: Austria, Belgium, Bulgaria, the Czech Republic, Cyprus, Denmark, Estonia, France, Finland, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom. Individual time series are analyzed through basic index, chain index, geomean, correlation analysis (Pearson's correlation coefficient) and elasticity analysis (Hindls et al. 2007). The correlation analysis provides basic information about the relationship existing between government expenditures (EUROSTAT) and GDP per capita (EUROSTAT) on one hand and selected above mentioned variables representing organic market development on the other hand. The elasticity of individual countries' organic agriculture in relation to government expenditures and GDP per capita is analyzed through the logarithmical regression. The advantage of this approach is the very easy calculation of elasticity values. Government expenditures in agriculture are analyzed in relation to organic market development especially because they are supposed to be one of main stimuli influencing organic farming development. Government expenditures in agriculture provide a basic overview about the level

of agricultural sector support in individual countries. The main idea is to identify if there exists a direct relation between the value of government expenditures and organic farming development. GDP per capita development is analyzed in relation to organic market characteristics especially because organic market is very dependent on the level of economy development and also it is dependent on the income and living standards of population. GDP per capita in this case is a well chosen factor, especially because of its ability to provide basic information about the economy growth and also about economic power of individual consumers (the growth or decline of GDP value is usually connected with positive or negative changes in available income per capita).

Analysis and discussion

The European Union is a large consumer and producer of organic foods. Organic farming accounts for 5.4% of farmland within the EU. The organic farms area is constantly growing. While in 2005, the size of organic agricultural area was 6.24 million hectares, in 2011 it was more than 9.5 million hectares. The number of producers increased during the same period from 163510 to 236042 (the average size of organic farm in the EU increased from 38 hectares to more than 40 hectares). The share of organic farmland on total agricultural area in the EU increased from 3.5% to 5.4% (for details see table 1). Specific figure characterizing organic farming development in the EU is the value of organic market development. While in 2005 the value of organic market in the EU was about 11.8 billion EUR, in 2011 it was already 19.7 billion EUR. The value of realized organic products sales per capita increased from 23.6 EUR to about 39.4 EUR (for details see table 2).

However, it is necessary to emphasize that significant differences in organic farming development exist among individual EU members. The highest share of organic farmland on total agricultural area is in Austria, Estonia, Sweden, the Czech Republic, Finland, Italy and Slovakia. The share of organic farm area in individual countries' available agricultural land is between 8%–20%. On the other hand the lowest share, less than 3%, can be found in Hungary, Luxemburg, the Netherlands, Romania, Ireland, Bulgaria and Malta. The following countries control majority of registered areas: Spain (17.05%), Italy (11.63%), Germany (10.67%), France (10.25%), United Kingdom (6.71%), Poland (6.40%), Austria (5.7%), Sweden (5.05%), the Czech Republic (4.84%) and Greece (3.26%). The mentioned countries share in total organic farmland is 81.46%. The share of other countries is lower than 3%. Nevertheless, it is necessary to emphasize that between individual countries huge differences exist with respect to average farm size (for details see table 5). The largest farms are in Slovakia (over 450 hectares), while the smallest farms are in Malta (2.5 hectares).

Looking at the growth rate of organic farming development in individual countries, we can see that during the analyzed period the size of organic farmland increased by 53% and the number of producers making business in organic

Table 1: Selected characteristics of organic farming in the EU in period 2005–2011

Country	2005	2011			2005	2011			2005	2011
	Area (ha)	Area (ha)	Basic	Chain	Producers	Producers	Basic	Chain	% Organic farmland in total arable agricultural land	% Organic farmland in total arable agricultural land
Austria	479817	542553	1.13	1.02	20391	21575	1.06	1.01	16.69	19.66
Belgium	22996	59220	2.58	1.17	733	1274	1.74	1.10	1.66	4.31
Bulgaria	2432	25022	10.29	1.47	111	978	8.81	1.44	0.05	0.82
Czech Republic	254982	460498	1.81	1.10	829	3904	4.71	1.29	5.99	10.84
Denmark	134129	162173	1.21	1.03	3036	2677	0.88	0.98	5.18	6.09
Estonia	59742	133779	2.24	1.14	1013	1431	1.41	1.06	7.21	14.75
Finland	147587	188189	1.28	1.04	4359	4114	0.94	0.99	6.68	8.21
France	550488	975141	1.77	1.10	11402	23135	2.03	1.13	2	3.55
Germany	807406	1015626	1.26	1.04	17020	22506	1.32	1.05	4.74	6.08
Greece	288737	309823	1.07	1.01	14614	21274	1.46	1.06	3.46	3.74
Hungary	128576	124402	0.97	0.99	1553	1433	0.92	0.99	3.01	2.94
Ireland	35266	54122	1.53	1.07	957	1400	1.46	1.07	0.84	1.31
Italy	1069462	1096889	1.03	1.00	44860	42041	0.94	0.99	8.42	8.61
Latvia	104235	184096	1.77	1.10	2873	3484	1.21	1.03	6.11	10.38
Lithuania	64544	152305	2.36	1.15	1811	2623	1.45	1.06	2.31	5.75
Luxembourg	3243	3720	1.15	1.02	72	96	1.33	1.05	2.51	2.84
Malta	14	23	1.63	1.08	6	9	1.50	1.07	0.14	0.22
Netherlands	48765	47205	0.97	0.99	1468	1672	1.14	1.02	2.54	2.45
Poland	159709	609412	3.82	1.25	7182	23430	3.26	1.22	1.08	3.94
Portugal	211501	201054	0.95	0.99	1479	2434	1.65	1.09	5.75	5.79
Romania	92770	229946	2.48	1.16	2920	9471	3.24	1.22	0.67	1.67
Slovakia	90206	166700	1.85	1.11	196	365	1.86	1.11	4.8	8.61
Slovenia	23499	32149	1.37	1.05	1718	2363	1.38	1.05	4.84	6.58
Spain	622762	1621898	2.60	1.17	15693	32195	2.05	1.13	2.51	6.52
Sweden	222738	480185	2.16	1.14	2951	5508	1.87	1.11	6.98	15.4
United Kingdom	612996	638528	1.04	1.01	4263	4650	1.09	1.01	3.84	3.96
EU27	6238603	9514659	1.53	1.07	163510	236042	1.44	1.06	3.50	5.39

Source: EUROSTAT 2013

farming increased by 44%. The most progressive trend in organic farming development, both from the point of view of area and number of producers exist in the following countries: Bulgaria, Poland, Spain, Belgium, Romania, Lithuania, Sweden, Estonia, Slovakia, France, the Czech republic, Latvia, Malta and Ireland.

In this case it should be emphasized that especially in Bulgaria, Poland, Spain, Belgium, Romania, Lithuania, Sweden and Estonia the size of organic farmland more than doubled during the analyzed time period. The growth of farming area was accompanied by the significant growth in number of producers. In general all, analyzed countries experienced significant growth of organic farming area (except for the Netherlands, Hungary and Portugal) and number of producers active in organic farming (except for Finland, Italy, Hungary and Denmark).

Quite specific characteristic of organic farming development in the European Union is the value of organic market. The value of organic farming products sold on EU market increased during the analyzed time period by 67%. The inter-annual growth rate of realized sales reached almost 9%. The most developed markets for organic products can be found for 2011 especially in Germany (33.48%), France (19.08%), United Kingdom (9.56%), Italy (8.74%), Austria (5.41%), Spain (4.9%), Denmark (4.58%), Sweden (4.50%), the Netherlands (3.87%) and Belgium (2.21%). The cumulative share of above mentioned countries on European organic products' market is over 96%.

Another important finding related to organic market development is the fact, that on the basis of the conducted analysis it is possible to say that organic products' market is quite stable and the shares of main players are more or less stable (the European market is controlled by the specific group of players). When talking about the main players, only the United Kingdom significantly reduced its share in organic market during the analyzed period – while in 2005 the share of United Kingdom was almost 20% in 2011 it was only 9.56%.

While analyzing organic products' market development, it is also necessary to mention that among individual countries huge differences exist with respect to per capita sales – for details see table 2. While in Denmark total spending for organic products is about 162 EUR per capita, in Slovakia it is only 0.74 EUR per capita a year. Based on organic market development we can say that the most progressive value development was, during the analyzed time period, recorded in Romania (+85% a year), Slovenia (+45% a year), Bulgaria (+40% a year), the Czech Republic (+30% a year), Hungary (+27% a year), Poland (+26% a year), Spain (+20% a year), Denmark (+19% a year), Lithuania (+23% a year) and Estonia (+20% a year). Those countries increased their share in European organic market value from 5.67% to 11.24%. The most progressive consumption (both in total value and in per capita value expression) can be allocated in Denmark (+105 EUR/cap), Austria (+72 EUR/cap), Sweden (+46 EUR/cap), Luxembourg (+43 EUR/cap), Germany (+33 EUR/cap), France (+26 EUR/cap), the Netherlands (+20 EUR/cap), Belgium (+17 EUR/cap) and Slovenia (+16.5 EUR/cap).

Table 2: Organic products market development in the EU in period 2005–2011

	Domestic sales/ capita value in EUR				Domestic sales value in mil. EUR			
	2005	2011	Basic	Chain	2005	2011	Basic	Chain
Austria	54.69	126.43	2.31	1.15	450.00	1065.00	2.37	1.15
Belgium	21.95	39.37	1.79	1.10	230.00	435.00	1.89	1.11
Bulgaria	0.13	0.95	7.37	1.40	1.00	7.00	7.00	1.38
Cyprus	1.94	1.79	0.92	0.99	2.00	2.00	1.00	1.00
Czech Republic	1.17	5.62	4.79	1.30	12.00	59.00	4.92	1.30
Denmark	56.65	161.74	2.86	1.19	307.00	901.00	2.93	1.20
Estonia	2.97	8.96	3.01	1.20	4.00	12.00	3.00	1.20
Finland	15.25	22.27	1.46	1.07	80.00	120.00	1.50	1.07
France	31.66	57.46	1.81	1.10	2000.00	3756.00	1.88	1.11
Germany	47.29	80.56	1.70	1.09	3900.00	6590.00	1.69	1.09
Greece	4.50	5.13	1.14	1.02	50.00	58.00	1.16	1.03
Hungary	0.59	2.51	4.21	1.27	6.00	25.00	4.17	1.27
Ireland	15.87	21.63	1.36	1.05	66.00	99.00	1.50	1.07
Italy	18.77	28.33	1.51	1.07	1100.00	1720.00	1.56	1.08
Latvia	0.87	1.94	2.24	1.14	2.00	4.00	2.00	1.12
Lithuania	0.59	1.98	3.38	1.23	2.00	6.00	3.00	1.20
Luxembourg	88.14	131.19	1.49	1.07	41.00	68.00	1.66	1.09
Malta	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Netherlands	25.67	45.59	1.78	1.10	419.00	761.00	1.82	1.10
Poland	0.79	3.11	3.96	1.26	30.00	120.00	4.00	1.26
Portugal	0.69	1.99	2.88	1.19	7.29	21.00	2.88	1.19
Romania	0.09	3.74	40.47	1.85	2.00	80.00	40.00	1.85
Slovak Republic	0.74	0.74	1.00	1.00	4.00	4.00	1.00	1.00
Slovenia	2.00	18.51	9.26	1.45	4.00	38.00	9.50	1.46
Spain	6.91	20.90	3.02	1.20	300.00	965.00	3.22	1.21
Sweden	47.95	93.66	1.95	1.12	433.00	885.00	2.04	1.13
United Kingdom	38.74	29.99	0.77	0.96	2333.00	1882.00	0.81	0.96
Total	23.57	39.37	1.67	1.09	11785.29	19683.00	1.67	1.09

Source: IFOAM 2013

The results of per capita consumption value development provide interesting findings about the willingness of European consumers to spend money for organic products. In general it is possible to say that the majority of consumers in all analyzed countries spend for organic products only limited (insignificant) amount of their income. It can be concluded that there is a positive trend in per capita consumption development. Except for Slovakia, Cyprus and United Kingdom in all countries growth of individual consumers spending for organic products can be observed.

Organic farming and organic market development are heavily influenced by economic development and agricultural policy of the European Union. During the monitored time period, the economy of individual European countries shows significant growth and that growth was also transformed into agricultural policy development. Also, income per capita increased significantly. The value of government expenditures for agricultural activities in the EU reached over 42 billion EUR a year and GDP per capita in the EU reached

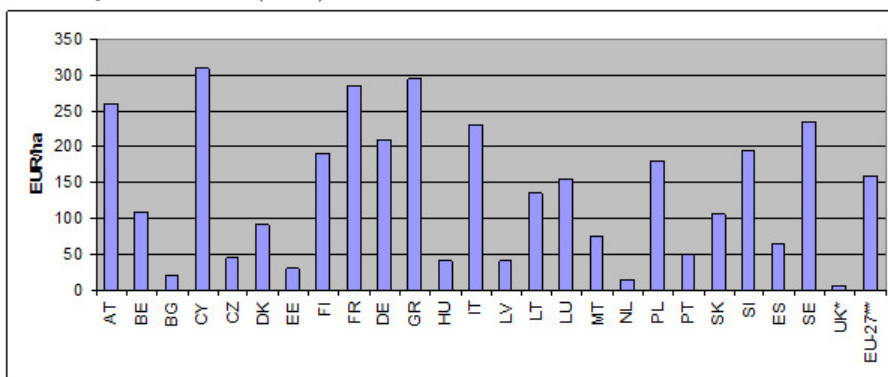
Table 3: Government agricultural expenditures and GDP/cap value development in the EU in period 2005–2011

Agricultural expenditures in mil. EUR	2005	2007	2009	2011	Basic	Chain	GDP in Euro per inhabitant	2005	2007	2009	2011	Basic	Chain
Austria	1436.3	1317.3	1510.2	1423.2	0.991	0.998	Austria	29800	33000	33100	35700	1.198	1.031
Belgium	705.3	741.0	737.9	718.0	1.018	1.003	Belgium	29000	31600	31600	33700	1.162	1.025
Bulgaria	225.5	217.4	248.0	211.1	0.936	0.989	Bulgaria	3000	4000	4600	5200	1.733	1.096
Cyprus	189.8	172.9	147.5	152.5	0.803	0.964	Cyprus	18400	20700	20900	21100	1.147	1.023
Czech Republic	626.5	837.0	1074.7	817.3	1.305	1.045	Czech Republic	10200	12800	13600	14800	1.451	1.064
Denmark	249.3	243.9	420.8	393.9	1.580	1.079	Denmark	38300	41700	40500	43200	1.128	1.020
Estonia	64.0	129.0	184.2	127.4	1.991	1.122	Estonia	8300	12000	10300	11900	1.434	1.062
Finland	1940.0	1941.0	1904.0	1995.0	1.028	1.005	Finland	30000	34000	32299	35000	1.167	1.026
France	6618.0	7121.0	7883.0	8031.0	1.214	1.033	France	27300	29600	29300	30700	1.125	1.020
Germany	5990.0	5440.0	5370.0	5920.0	0.988	0.998	Germany	27000	29500	29000	31900	1.181	1.028
Greece	50.0	198.0	816.0	69.0	1.380	1.055	Greece	17400	19900	20500	18500	1.063	1.010
Hungary	1139.7	1191.7	755.2	522.2	0.458	0.878	Hungary	8800	9900	9100	10000	1.136	1.022
Ireland	1063.4	1274.5	1107.7	859.3	0.808	0.965	Ireland	39200	43100	35800	35500	0.906	0.984
Italy	6084.0	6286.0	5907.0	5839.0	0.960	0.993	Italy	24500	26200	25200	26000	1.061	1.010
Latvia	167.4	188.0	294.6	261.0	1.559	1.077	Latvia	5800	9600	8600	9800	1.690	1.091
Lithuania	230.5	381.5	365.6	327.2	1.420	1.060	Lithuania	6300	8900	8400	10200	1.619	1.084
Luxembourg	133.9	139.2	175.5	189.6	1.416	1.060	Luxembourg	65000	78000	72300	82100	1.263	1.040
Malta	54.3	47.5	49.2	43.9	0.808	0.965	Malta	12200	13700	14400	15900	1.303	1.045
Netherlands	1086.0	1180.0	1408.0	1433.0	1.320	1.047	Netherlands	31500	34900	34700	35900	1.140	1.022
Poland	1743.0	3047.8	2636.1	2265.9	1.300	1.045	Poland	6400	8200	8100	9600	1.500	1.070
Portugal	779.4	629.1	646.7	623.1	0.799	0.963	Portugal	14600	16000	15900	16100	1.103	1.016
Romania	485.6	683.9	562.8	468.9	0.966	0.994	Romania	3700	5800	5500	6100	1.649	1.087
Slovakia	360.4	404.7	634.3	562.0	1.559	1.077	Slovakia	7100	10200	11600	12800	1.803	1.103
Slovenia	218.8	243.6	267.9	203.7	0.931	0.988	Slovenia	14400	17100	17400	17600	1.222	1.034
Spain	5599.0	6460.0	6026.0	5318.3	0.950	0.991	Spain	21000	23500	22800	23100	1.100	1.016
Sweden	707.2	567.0	593.8	706.7	0.999	1.000	Sweden	33000	36900	31500	41000	1.242	1.037
United Kingdom	4755.8	3783.2	2947.4	3271.2	0.688	0.940	United Kingdom	31000	34200	25700	28200	0.910	0.984
EU27	42703.1	44866.2	44674.1	42753.4	1.001	1.000	EU27	22600	25000	23500	25200	1.115	1.018

Source: EUROSTAT 2013

more than 25 thousands EUR (for details about government expenditures and GDP/cap value – see table 3). Except for usual subsidies connected with agricultural sector development in the European Union, organic farming is subject to specific subsidies supporting only its own development. In 2011, the value of organic farming subsidies provided by individual EU governments represented more than 1.5 billion EUR, which accounts for 3.5% of total government agricultural expenditures in the EU. Nevertheless, it is necessary to emphasize the existence of significant differences among individual countries in organic farming financing – for details see figure 1.

Figure 1: Average government spending for organic support payments per certified organic hectare (2011)



Source: European Commission 2011

Note: * Without England, ** Without England, Ireland and Romania

While in Cyprus, subsidies for one hectare of organic farmland reached more than 300 EUR, in the Netherlands it was only about 15 EUR. Organic farming enjoys different priority in individual countries. In many countries organic farming is a natural part of their agricultural sector, in some countries it is something completely new. Organic farming can be perceived as a new segment of agricultural sector especially in the new EU members, while in the case of old EU members, organic farming maintains its stable position within economy. While in the case of new EU members organic farming represents an alternative to conventional agriculture and consumers and farmers only slowly move forward, in the old EU members, organic farming is already established on agricultural and food market. Its position is stabilized and organic farm producers are able to address specific group of consumers. It is also necessary to emphasize much higher purchasing power of old EU members' consumers compared to consumers in new EU countries. Limited purchasing power is one of the main reasons why consumers in new EU countries do not consume organic products to such an extent as consumers in old EU countries.

Organic farming development within the European Union is influenced by government subsidies and GDP development. It is also obvious, that change in GDP value and government subsidies or expenditures has different impact on organic agriculture and market development in individual analyzed coun-

Table 4: Correlation and elasticity existing between GDP/cap and government expenditures on one side and selected organic farming characteristics on the other hand

	GDP per inhabitant						Government expenditures					
	Area (ha)		Producers		Sales, total [Mio €]		Organic Products sales per		Area (ha)		Producers	
	C	E	C	E	C	E	C	E	C	E	C	E
Austria	0.762	0.728	0.536	0.353	0.951	5.299	0.952	5.168	0.371	0.537	0.431	0.441
Belgium	0.905	5.887	0.880	3.493	0.881	4.303	0.879	3.966	-0.188	-0.749	-0.239	-1.155
Bulgaria	0.925	4.234	0.830	3.380	0.902	4.463	0.903	4.537	0.237	0.863	-0.151	-0.029
Cyprus	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Czech Rep.	0.835	1.407	0.793	3.821	0.940	4.458	0.939	4.387	0.569	0.903	0.487	2.428
Denmark	0.763	1.387	-0.783	-0.823	0.857	7.873	0.860	7.687	0.796	0.295	-0.752	-0.164
Estonia	0.562	1.274	0.711	0.621	0.600	2.473	0.601	2.483	0.419	0.441	0.524	0.204
Finland	0.485	0.825	-0.586	-0.349	0.413	1.582	0.396	1.462	0.119	0.371	-0.059	-0.075
France	0.665	3.893	0.696	5.158	0.735	5.499	0.728	5.226	0.855	2.386	0.910	3.156
Germany	0.887	1.434	0.877	1.746	0.951	3.104	0.950	3.156	-0.060	-0.179	-0.109	-0.355
Greece	0.512	0.420	0.792	2.264	0.792	0.717	0.806	0.655	0.507	0.021	0.332	0.088
Hungary	-0.456	-0.332	-0.229	-0.221	0.438	3.786	0.439	3.819	-0.223	-0.023	-0.232	-0.026
Ireland	-0.705	-1.154	-0.761	-1.229	-0.693	-2.146	-0.678	-1.908	-0.136	-0.080	-0.220	-0.109
Italy	-0.110	-0.218	-0.152	-0.212	0.268	1.919	0.249	1.637	0.547	0.258	0.520	0.179
Latvia	0.797	0.738	0.609	0.441	0.673	1.332	0.689	1.417	0.703	0.543	0.179	0.134
Lithuania	0.866	1.530	0.857	0.748	0.828	1.755	0.796	1.902	0.718	1.328	0.825	0.700
Luxembourg	0.646	0.436	0.861	1.353	0.628	1.787	0.585	1.390	0.725	0.236	0.710	0.542
Malta	0.492	1.616	0.088	1.445	N/A	N/A	N/A	N/A	-0.192	-0.678	-0.358	-3.140
Netherlands	-0.047	-0.047	0.492	0.506	0.726	3.251	0.730	3.130	-0.012	-0.006	0.698	0.326
Poland	0.815	2.634	0.860	2.523	0.652	1.987	0.655	1.977	0.053	0.578	0.157	0.658
Portugal	-0.164	-0.542	0.767	4.004	0.547	8.099	0.546	8.043	0.158	0.181	-0.699	-1.390
Romania	0.681	1.214	0.271	0.526	0.387	3.381	0.387	3.397	-0.412	-0.482	-0.399	-0.868
Slovakia	0.911	0.951	0.951	0.996	-0.042	0.003	-0.090	-0.006	0.841	0.830	0.897	0.864
Slovenia	0.902	1.119	0.775	0.958	0.433	6.172	0.432	6.088	0.004	0.007	-0.191	-0.132
Spain	0.457	4.844	0.380	2.874	0.163	2.902	0.150	2.497	-0.328	-0.968	-0.447	-1.110
Sweden	0.560	1.783	0.386	1.232	0.530	1.706	0.522	1.599	0.130	0.154	0.279	0.978
UK	-0.446	-0.364	0.052	0.008	0.832	1.052	0.835	1.155	-0.697	-0.345	-0.558	-0.315
EU 27	0.575	2.250	0.617	1.936	0.628	2.992	0.630	2.866	-0.261	-0.979	-0.210	-0.606

C = Correlation; E = Elasticity

Source: own calculations, 2013

tries. In case of some countries there is significant correlation and high level of elasticity between organic farming development and government expenditures. There is also a group of countries which can be characterized by the significant correlation and elasticity between organic farming performance and GDP value development. On the other hand there are also many countries, where the level of mutual correlation and elasticity existing between organic farming and government expenditures respectively GDP value development is limited (For details about correlation and elasticity existing between organic farming and government expenditures and organic farming and GDP/cap value development – see table 4).

Table 5: Average organic farm size in individual European Union countries in hectares

	2005	2006	2007	2008	2009	2010	2011	Basic index	Chain index
Austria	23.5	23.7	24.2	24.5	24.7	24.6	25.1	1.069	1.011
Belgium	31.4	36.5	38.3	39.6	40.6	43.0	46.5	1.482	1.068
Bulgaria	21.9	21.5	56.9	65.6	27.6	35.8	25.6	1.168	1.026
Cyprus	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CR	307.6	292.4	237.4	186.3	148.2	127.4	118.0	0.383	0.852
Denmark	44.2	49.4	50.3	54.5	58.1	60.9	60.6	1.371	1.054
Estonia	59.0	62.1	65.7	69.4	74.5	83.3	93.5	1.585	1.080
Finland	33.9	36.5	37.5	37.7	40.7	42.1	45.7	1.351	1.051
France	48.3	47.5	46.5	43.9	41.2	41.0	42.2	0.873	0.978
Germany	47.4	47.0	46.3	45.8	45.0	45.2	45.1	0.951	0.992
Greece	19.8	12.6	11.8	13.2	13.8	14.6	14.6	0.737	0.950
Hungary	82.8	79.1	88.0	76.1	86.8	80.9	86.8	1.049	1.008
Ireland	36.9	37.4	36.1	38.2	36.0	35.0	38.7	1.049	1.008
Italy	23.8	25.4	25.4	22.6	25.8	26.6	26.1	1.094	1.015
Latvia	36.3	36.5	36.6	38.5	39.9	46.3	52.8	1.456	1.065
Lithuania	35.6	41.2	51.3	43.7	48.7	54.8	58.1	1.629	1.085
Luxembourg	45.0	50.4	41.7	41.6	46.9	38.8	38.8	0.860	0.975
Malta	2.3	2.0	0.4	0.4	2.2	2.2	2.5	1.087	1.014
Netherlands	33.2	33.4	32.1	34.2	34.9	29.8	28.2	0.850	0.973
Poland	22.2	24.8	24.0	21.1	21.5	25.4	26.0	1.170	1.026
Portugal	143.0	138.2	117.9	111.0	91.7	82.6	82.6	0.578	0.913
Romania	31.8	35.5	58.7	50.5	54.7	61.2	24.3	0.764	0.956
Slovakia	460.2	431.6	421.1	402.2	400.8	480.6	456.7	0.992	0.999
Slovenia	13.7	13.7	14.7	14.4	14.0	13.8	13.6	0.995	0.999
Spain	39.7	42.8	44.2	53.1	52.6	52.3	50.4	1.269	1.041
Sweden	75.5	94.7	108.2	91.3	81.3	84.2	87.2	1.155	1.024
UK	143.8	130.6	123.9	137.0	140.0	141.4	137.3	0.955	0.992
EU27	38.2	37.4	38.5	38.9	39.8	41.2	40.3	1.056	1.009

Source: own calculations

Based on the conducted analysis it is possible to see that government expenditures do not represent the main stimuli for organic farming growth in majority of EU countries. If we analyzed the EU as a group of countries, it is obvious that government expenditures have only limited impact on organic farmland size development and also their impact on the number of producers and value of realized sales is limited. Government expenditures represent important

stimuli for organic farming development especially in the new EU countries. In general, government expenditures as one of important factors influencing organic farming development are seen especially in the Czech Republic, Denmark, France, Greece, Italy, Lithuania, Latvia, Estonia, Luxemburg, Slovakia and the United Kingdom.

In case of government expenditures impact on organic farming and market development, it is possible to see that government expenditures are not probably the main stimuli for organic farming growth. Much more significant stimulus supporting organic farming development is probably economy development and especially the growth of income (economy and purchasing power) both in total and in per capita expression. For mutual relationship, it can be argued that there is an existing relationship between GDP/cap and selected organic farming's characteristics in individual countries. We can see that high level of mutual relations (correlation and elasticity) between GDP and organic farming development exist in the majority of analyzed countries: Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Estonia, France, Germany, Ireland, Latvia, Lithuania, Luxemburg, Poland, Slovakia and Slovenia. Limited if not non-existent relationship or correlation can be found in the case of Finland, Hungary, Italy, Malta, the Netherlands, Portugal, Spain, Sweden and the United Kingdom.

Conclusion

Based on the results, it is possible to say that during the analyzed time period organic farming and organic products market had significant growth in the European Union. The size of organic farmland increased significantly and so did the number of producers increase. Very important factor influencing and stimulating the growth of organic farming is the increase of organic market value and especially the growth of demand for organic products in the majority of European countries. The significant organic farming growth can be found in majority of analyzed countries. In this case, it should be emphasized that high growth of organic farming size was seen especially in the new EU countries. In the case of the old EU members, it is possible to see that organic farming is already a stable part of their agricultural sectors. Organic farming grows especially in those countries which make a decision to specialize themselves (i.e. Spain, France, Sweden, Belgium) in their organic markets.

In general it is obvious that organic farming represents a specific market niche in the European agricultural market. Its development is linked especially to the new consumption trends and also to the growth of individual countries economies and especially to the growth of income per capita in individual countries. The growth of organic farming is stimulated especially by the demand side of economy rather than by government subsidies or expenditures. The conducted analysis proved much higher correlation and elasticity of organic farming sector performance in relation to individual countries' economy development than it is in relation to individual countries' government expenditures.

It is also necessary to emphasize that organic market in the European Union is controlled by the limited number of countries. Also the willingness of consumers to pay higher prices for organic products is limited. Among individual countries we can see huge differences both in total realized consumption value, and in per capita consumption value.

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