

Structural Analysis of Dairy Sector in the Selected EU Pre-accession Countries*

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Abstract

The European Union, which includes 15 countries had an important power at the beginning of 21st century when globalization was highly discussed. 13 candidate countries will enhance the importance of the EU upon acceptance into the community.

In this study, structural analysis of dairy sectors in 8 important candidate countries (Bulgaria, Czech Republic, Hungary, Lithuania, Poland, Romania, Slovak Republic and Turkey) was conducted. In addition to main macro indicators, some data of dairy sector (livestock, milk production, milk consumption, producer prices and export and import values) were compared. Also, the dairy sectors of eight candidate countries were evaluated in case they would be the members of the EU.

Key Words: Dairy sector, European Union.

Introduction

Currently 327,5 million people have been living in the EU. In the near future it is expected that over 100 million more will be added into that population. In the medium run, the population of the EU will amount to about 550 million with the possible membership of Turkey which has a high population. If that happens, the EU will be a stronger power in the region in terms of market and production. The economic indicators of both the member and non-member countries are quite different from each other. For instance, in one of the member countries, Greece, the inflation rate is 5% while the rate is below 0.5 % in Sweden. The agricultural structures of these countries are also different from each other as well. The main reasons of these differences stem from the various physical conditions of the countries and the different levels of development.

In this study, the agricultural structures and specifically the dairy sector are analyzed in selected candidate countries. That kind of sub-sector analysis is especially important to determine the both cross country and cross sector relations.

The eight candidate countries namely; Bulgaria, Czech Republic, Hungary, Lithuania, Poland, Romania, Slovak Republic and Turkey will be able to be full members of the union in different periods. Especially Turkey is the only candidate country that has not started its full membership negotiations. In this study, some criteria about the general, agricultural, and especially dairy sector for the candidate countries

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are tried to be examined rather than the suggestion of which country has priority to be full member.

Also, this study will be a reference for studies that analyze the possible change in dairy sectors after the membership.

Method

As known, there are 13 candidates for the EU with 15 members. The countries with the total cattle stocks over 5000 are included in that study. The countries; such as Southern Cyprus, Estonia, Latvia, Malta, and Slovenia are excluded in that manner. Since the cow milk is the main source of the processed milk in the union, that kind of a selection is made. Also, the sheep and goat milk is included in that study while the buffalo milk is excluded because of its low share.

In these eight countries (Bulgaria, Czech Republic, Hungary, Lithuania, Poland, Romania, Slovak Republic and Turkey) the general overview of the economy is presented before the structure of the dairy sector. That way, to evaluate and compare these countries will be possible. The main criteria as the economic indicators are as below:

- Total population
- Active population
- Population growth rate
- Total area
- Current GDP
- GDP growth rate
- GDP per capita
- Inflation rate
- Trade balance
- Unemployment rate
- The share of EU in their exports
- The share of member countries in the EU's exports
- World competitiveness rates
- Life expectancy at birth
- Number of GSM users
- Patent numbers

Agricultural structure can be defined as a production environment that combines the various main production factors. That definition covers mainly the variables that can be used to analyze a sector. In this study, some indicators are used in order to determine the structural patterns of the candidate countries. The indicators for the agricultural criteria are listed below:

- Rural population rate
- Active population in agriculture
- The share of agriculture in total employment
- Agricultural land area
- The share of agriculture in total gross value added

In analyzing a sub-sector it is useful to use more specific data. For that reason, in this study the following criteria are used:

- Cow, sheep, and goat stock
- Milk production amounts

- Milk yield per animal
- Average milk prices paid to farmers
- Processed milk amount and total milk supply
- Total and per capita milk, cheese, and butter amounts.

Since all these data concerning the criteria mentioned are presented in tables, only the highlights are explained.

Discussion

In Tables 1 and 2 some general indicators for the countries are presented. In terms of the economic criteria (inflation, GDP, unemployment rate, competitiveness rate etc.) it is noticed that the candidate countries are far behind the member countries. However, in terms of the population criteria, it seems that the member countries are good sources of market and labor. Although it is possible to make some various inferences, it can be seen that Turkey, Romania, and Bulgaria are far behind in terms of the inflation rates and the GDP index.

It can be seen from the Table 3 that the agricultural sector has higher share in candidate countries than the member countries. It is fair to say that Greece and Portugal has similarities to candidate countries. Another point to indicate that Turkey has vast agricultural land and a crowded rural population.

In terms of the dairy sector, it can be seen that the cow milk constitutes the high share of the total milk production. It is noteworthy to see that milk yield per cow is over 3000 kg in all countries except Turkey where the average yield is 1592 kg. In general, the milk yield in the candidate countries is below the member countries while that of Greece and Spain is also lower than some of the candidate countries. Milk prices paid to farmers are lowest in Poland and highest in Italy. The milk prices paid to farmers are higher in all member countries than the candidate countries. The milk, cheese, and butter consumptions are all lower in candidate countries than that of the member countries. The noteworthy point is the quite high per capita consumption in Romania.

Table 1. Some Macro Economic Indicators for the EU and Candidate Countries

	Total Population (million) 2000	Active Population (million) 2000	Population Growth Rate (%) 1998-2015	Total Area (1000 km ²) 1998	Current GDP (billion €) 1998	GDP Growth Rate (%) 1998	GDP Per Capita * 1998	Inflation Rate (%) 1998
Bulgaria	7,94	4,10	-0,7	111	11,0	3,4	23	22,3
Czech Republic	10,27	5,77	-0,2	79	50,1	-2,3	60	10,7
Hungary	9,96	4,77	-0,4	93	42,4	5,1	49	14,3
Lithuania	3,70	1,93	-0,1	65	9,5	5,1	31	5,1
Poland	38,60	19,98	0,0	313	140,7	5,0	39	11,8
Romania	22,43	10,72	-0,3	238	33,9	-7,3	27	59,1
Slovak Republic	5,39	2,97	0,1	49	18,1	4,4	46	6,7
Turkey	66,66	31,21	1,2	775	175,8	2,8	37	84,6
Belgium	10,24	4,22	0,0	33	223,1	2,9	112	1,0
Denmark	5,32	2,94	0,0	43	155,8	2,7	119	1,8
Germany	82,02	40,30	-0,2	357	1924,8	2,2	108	1,0
Greece	10,61	4,63	-0,1	132	208,6	3,7	62	4,7
Spain	39,91	17,58	-0,2	506	520,2	4,0	82	1,8
France	59,23	26,84	0,2	552	1297,4	3,4	101	0,8
Ireland	3,80	1,61	0,6	70	75,9	8,9	105	2,4
Italy	57,53	25,44	-0,3	301	1058,7	1,3	101	2,0
Luxemburg	0,44	0,18	-	3	16,4	5,0	181	1,0
Netherlands	15,86	7,36	0,2	41	349,7	5,7	109	2,0
Austria	8,80	3,73	-0,1	84	188,5	3,3	110	1,0
Portugal	10,01	5,10	-0,1	92	97,6	3,9	73	2,7
Finland	5,17	2,60	0,1	338	114,7	5,6	100	1,5
Sweden	8,84	4,79	-0,1	450	210,1	2,6	100	0,4
United Kingdom	59,63	29,89	0,0	245	1247,3	2,2	100	3,4

(*) Average Purchasing Power Parity of EU is fixed as 100, then is calculated for other countries.

Resources: i) The World Bank, World Development Indicators, 2000.

ii) FAO, Database Results, 2002 <http://apps.fao.org>

iii) OECD, Economic Outlook, December, 1999

iv) European Commission, EUROSTAT, 2002 <http://europe.eu.int/comm>

Table 2. Some Macro Economic Indicators for the EU and Candidate Countries (continues)

	Trade Balance (million €)	Unemployment Rate (%)	The Share of EU in Their Exports (%)	The Share of Candidate Countries in the EU's Trade (%)	World Competitiveness Rates		Life Expectancy at Birth (year)	Number of GSM Users per thousand capita 1999	Patent Numbers per ten thousand capita 1997
	1998	1998	1998	1998	1999	2000			
Bulgaria	-607	18,0	49,7	0,3	-	-	71	-	-
Czech Republic	-2198	8,5	64,2	2,2	41	37	74	120	0,6
Hungary	-2409	7,8	72,9	2,2	26	27	71	130	0,7
Lithuania	-1858	13,3	38,0	0,3	-	-	71	-	-
Poland	-16792	10,8	68,3	3,1	44	40	73	80	0,6
Romania	-3154	8,3	64,5	0,8	-	-	69	-	-
Slovak Republic	-2045	12,5	55,8	0,8	-	-	73	-	-
Turkey	-16359	11,8	50,0	2,5	37	41	69	90	0,1
Belgium	11521	8,5	-	-	22	20	77	220	0,9
Denmark	1909	5,1	-	-	8	12	75	440	2,5
Germany	64471	8,4	-	-	9	8	77	220	5,5
Greece	-16620	10,7	-	-	31	32	78	270	0,4
Spain	-22134	18,7	-	-	23	24	78	270	0,6
France	-11471	11,7	-	-	21	19	78	250	2,3
Ireland	-19313	7,7	-	-	11	7	76	270	2,2
Italy	23127	11,8	-	-	30	30	78	430	1,2
Luxemburg	-	2,8	-	-	4	6	77	400	2,1
Netherlands	11927	4,0	-	-	5	4	78	320	1,6
Austria	-4834	4,7	-	-	19	18	77	380	2,3
Portugal	-11891	5,1	-	-	28	29	75	380	0,1
Finland	9626	11,4	-	-	3	3	77	610	4,7
Sweden	14733	8,3	-	-	14	9	79	500	4,7
United Kingdom	-42216	8,3	-	-	15	15	77	290	3,1

Resources: i) The World Bank, World Development Indicators, 1999.

iii) The UNICE, Benchmarking Report, 2000

ii) Annual Competitiveness Report, NCC, 2000

iv) European Commission, EUROSTAT, 2002 <http://europe.eu.int/comm>

Table 3. Some Indicators of Agricultural Structure in the EU and Candidate Countries

	Rural Population Rate (%)	Active Population in Agriculture (%)	The Share of Agriculture in Total Employment (%)	Agricultural Land Area (1000 ha)	The Share of Agriculture in Total Gross Value Added (%)
	2000	2000	1998	2000	1998
Bulgaria	7,5	7,0	(1994) 22,1	6251	21,1
Czech Republic	8,1	8,0	5,5	4279	4,5
Hungary	12,0	10,6	7,6	5854	(1997) 5,9
Lithuania	14,8	12,3	(1997) 20,5	3489	10,1
Poland	19,0	21,6	19,2	18413	4,8
Romania	13,9	15,0	39,0	14809	17,6
Slovak Republic	9,0	9,0	8,6	2441	4,6
Turkey	30,7	46,2	45,1	39050	16,1
Belgium	1,8	1,8	2,4	1522	1,2
Denmark	3,7	3,7	3,6	2647	(1995) 3,6
Germany	2,5	2,5	2,8	17068	1,1
Greece	13,4	16,7	17,7	8529	(1995) 12,0
Spain	7,3	7,3	8,0	29667	3,5
France	3,4	3,3	4,4	29706	2,3
Ireland	10,2	10,0	9,1	4403	(1995) 5,1
Italy	5,3	5,3	6,6	15271	2,8
Luxemburg	2,3	2,0	2,3	-	(1995) 1,0
Netherlands	3,4	3,3	3,3	1956	(1995) 3,1
Austria	5,1	5,0	6,6	3390	1,4
Portugal	14,3	12,7	13,6	4142	(1995) 3,9
Finland	6,0	5,4	6,5	2212	3,5
Sweden	3,5	3,0	2,6	3153	(1994) 2,0
United Kingdom	1,8	1,7	1,7	16961	(1995) 1,6

Resources: i) The World Bank, World Development Indicators, 1999.
 iii) OECD, Main Economic Indicators, February, 2000

ii) FAO, Database Results, 2002 <http://apps.fao.org>
 iv) ILO, Key Indicators of the Labour Market, 1999

Table 4. Number of Livestock, Amount of Milk Production, Milk Yield per Animal and Producer Prices of the Milk in the EU and Candidate Countries

	Livestock (1000 head) 2001			Milk Production Amount (1000 ton) 2001			Milk Yield Per Animal (kg/head) 2001			Total Milk Production (1000 ton) 2001	Average Milk Prices (\$ /100 kg) 1999
	Cattle	Sheep	Goat	Cow	Sheep	Goat	Cow	Sheep	Goat		
Bulgaria	640	2286	970	1290	100	215	3200	50	254	1617	-
Czech Republic	1587	90	28	2736	1	13	5658	24	521	2750	20,31
Hungary	805	1129	150	2143	31	10	6036	34	330	2184	25,34
Lithuania	748	11	23	1810	-	-	4129	-	-	1810	16,23
Poland	5723	337	-	12030	1	-	4362	39	-	1231	15,24
Romania	2965	7800	574	5047	330	-	3154	57	-	5377	-
Slovak Republic	646	347	51	1102	11	13	4650	61	363	1126	18,90
Turkey	10800	29435	8057	8600	785	225	1593	49	57	9676	19,00
Belgium – Lux.	3245	155	14	3700	-	-	5498	-	-	3700	28,42
Denmark	1891	145	-	4660	-	-	7516	-	-	4660	32,77
Germany	14567	2140	140	28300	-	22	5556	-	880	28322	30,35
Greece	585	9000	5300	770	670	450	4529	100	120	1890	33,77
Spain	6163	24400	2830	6294	306	320	4542	-	-	6920	29,85
France	20500	10000	1200	24890	250	460	4614	188	511	25600	30,06
Ireland	6459	5130	-	5416	-	-	4374	-	-	5416	29,42
Italy	7211	11089	1375	11900	850	140	5535	124	147	13048	36,55
Netherlands	4050	1400	180	10500	-	-	7143	-	-	10500	30,46
Austria	2155	357	70	3340	7	17	4703	39	420	3364	29,55
Portugal	1250	5900	760	1860	98	35	5239	-	-	1993	29,90
Finland	1085	100	8	2500	-	-	6452	-	-	2500	32,06
Sweden	1651	451	-	3300	-	-	7759	-	-	3300	34,13
United Kingdom	10600	36697	-	14717	-	-	6538	-	-	14717	28,27

Resources: i) FAO, Database Results, 2002 <http://apps.fao.org>

ii) IDF, World Dairy Situation 2000, Bulletin of the International Dairy Federation, 355/2000, Belgium.

Table 5. Amount of Milk, Cheese and Butter Production, Milk Exports and Imports, and Per Capita Milk, Cheese and Butter Production (2000)

	Milk Whole Production (1000 ton)	Milk Whole Exports (1000 ton)	Milk Whole Imports (1000 ton)	Milk Whole Domestic Supply (1000 ton)	Milk Whole Food (1000 ton)	Milk Whole (kg per capita per year)	Cheese Food (1000 ton)	Cheese (kg per capita per year)	Butter Food (1000 ton)	Butter (kg per capita per year)
Bulgaria	1706	1	22	1727	1047	131,7	36	4,5	3	0,3
Czech Republic	2805	313	40	2532	464	45,2	139	13,5	42	4,1
Hungary	2189	89	29	2128	847	85,0	88	8,9	10	1,0
Lithuania	1725	10	4	1719	467	126,2	19	5,0	10	2,7
Poland	11902	980	241	11164	2692	69,7	429	11,1	168	4,4
Romania	4623	1	28	4650	3902	173,9	39	1,8	7	0,3
Slovak Republic	1123	32	26	1118	165	30,5	51	9,4	15	2,7
Turkey	9808	1	18	9825	6147	92,2	133	2,0	120	1,8
Belgium – Lux.	3689	1147	860	3379	587	54,9	147	13,7	66	6,2
Denmark	4720	507	37	4250	351	66,0	80	15,1	9	1,7
Germany	28354	3847	817	25324	4674	57,0	1552	18,9	548	6,7
Greece	1959	13	370	2316	834	78,6	270	25,4	8	0,8
Spain	6673	622	1044	7096	4302	107,8	251	6,3	26	0,6
France	25630	2613	888	23905	3068	51,8	1398	23,6	525	8,9
Ireland	5160	273	322	5186	646	170,0	32	8,5	11	2,9
Italy	12891	19	1831	14703	2383	41,4	1179	20,5	120	2,1
Netherlands	11902	2069	1230	10335	1671	105,3	357	22,5	36	2,3
Austria	3364	391	87	3060	666	82,4	155	19,2	40	4,9
Portugal	2133	301	240	2072	869	86,7	89	8,8	17	1,7
Finland	2445	219	17	2248	685	132,4	73	14,1	20	3,8
Sweden	3300	18	31	3313	337	72,0	154	17,4	34	3,9
United Kingdom	14489	285	347	14551	7371	123,6	552	9,2	210	3,5

Resources: FAO, Database Results, 2002 <http://apps.fao.org>

Conclusion

It is quite difficult to put forward the judgments regarding the which countries have the qualification for membership or when they should join. It is a matter of another study. In this study the general perspective of the candidate countries are tried to be examined.

When the general overview of economical, agricultural, and dairy sub-sectors for the EU and eight candidate countries (Bulgaria, Czech Republic, Hungary, Lithuania, Poland, Romania, Slovak Republic, and Turkey) are analyzed, it can be said that all the member countries are similar to each other. However, it is seen that Greece, Spain, and Portugal agriculture has higher share in their economies. Turkey has some differences in terms of the structure of the agriculture and the dairy sector in the candidate countries. Also, it is noticed that milk yield per animal is lowest in Turkey. In reality, Turkey has a different status for the candidateship. It is necessary that Turkey, which couldn't started the full membership negotiations, should make the structural arrangements. Nevertheless, Turkey is a rich in labor and land resource, and it is a valuable market for the EU.

Resources

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