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STUDY

Policy Department B
Structural and Cohesion Policies

INTEGRATION OF THE NEW MEMBER STATES INTO THE COMMON AGRICULTURAL POLICY

VOLUME II: ANNEXES

AGRICULTURE

February 2007

EN

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Directorate General Internal Policies of the Union

Policy Department Structural and Cohesion Policies

AGRICULTURE AND RURAL DEVELOPMENT

INTEGRATION OF THE NEW MEMBER STATES INTO THE COMMON AGRICULTURAL POLICY

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Content:
This study presents an overview of the integration into the Common Agricultural Policy (CAP) of the ten New Member States (NMS) which joined the European Union (EU) in May 2004. In particular, the study analyses the effects of the main CAP instruments (i.e. direct payments, market measures and Rural Development measures) on modernisation and competitiveness of the NMS agriculture and compare it with the situation of the other EU 15 members (EU-15).

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Table of contents

Methodological note

1. The study is based on official statistics, reports and available literature. In general, national institutions have been asked to deliver data and materials, and local experts have been requested to provide more detailed information about specific subjects (e.g.: implementation of the Rural Development policy, direct payments, actions in sectors non covered by the CAP, etc.) by following a case-study approach. Eurostat, FAO-Stat, the Farm Accountancy Data Network (FADN), the OECD database and national statistics have been the main official information sources ([1]). In some cases, data have limited time and area coverage ([2]), and official statistics are not completely reliable ([3]).

2. The FADN database has been used to estimate the relevance of payments received by farmers under the CAP. About production costs, recent data (2004-2005) have been found in ad hoc studies. The analysis on PSE and related indexes are based on OECD data, which are available only as aggregate values of the whole EU-25. To obtain a more detailed breakdown, the values related to the NMS have been separated from the EU-15 values through specific calculations.

3. Documents from official sources (EU Commission and national governments) have been the main reference to examine implementation of SAPARD and CAP-Rural Development (CAP-RD) measures. Especially the reports from national governments represent, in Autumn 2006, the most updated information available on the subject. The SAPARD started much later than scheduled. At the end of 2005, the commitments under this programme reached 94% of the total EU financial allocation. This means that most of the projects financed by SAPARD are still on going and it is not possible to analyse the impact of the programme on the development of NMS rural areas, through statistic series. Available impact evaluations, sometimes included in government reports, are mostly based on experts' judgements rather than statistic data ([4]). As regards the CAP–RD measures, which started implementation in the NMS only after the Accession, the level of commitments is much lower than SAPARD; official documents indicate only the number of projects accepted for funding and, in some cases, completely lack of quantitative information ([5]).

4. The analysis of the SAPARD is based on the finance for each measure. National administrations classify projects, and related expenditure, according to the main funding lines and corresponding RD measures. This represents the highest level of detail accessible. Any information concerning the real type of investment or detailed action funded by the CAP lies in the individual file of each project. No literature on this subject could be found and the most updated data available (September 2006) have been used. The analysis on the institutional aspects of CAP implementation in the NMS stems from official criteria adopted at EU level and adapted to the study aims.

([1]) The list of institutions and contacts is available on demand.
([2]) E.g., data about some EU countries in 2005 are not published; production and yields data refer to 2006 only in few cases, etc.
([3]) In some cases, yearly data do not change across the years; in other cases, they show very large yearly variations. These trends are ambiguous and unusual. In those cases we mainly adopted the data as trend information.
([4]) Detailed information about this aspect are included in Annex to Chapter 2.
([5]) In many cases reports were in national language, did not cover all the issues required by the European evaluation standards, reported very general data (the information concerning CAP rural development measures is paradigmatic. It's not a case indeed that evaluation teams have frequently reported about serious problems on the reporting itself.

5. As mentioned under point 1, we adopted a case-study approach to overcome information problems. Local experts have been asked to address directly local institutions in order to find out the basic information for the study. About the operation of the SAPS, we focused on two aspects: the national complementary payments and the level of implementation. This information, mainly obtained through field search, is available for 6 out of 8 countries adopting the SAPS (Poland, Czech Republic, Hungary, Latvia, Lithuania, Estonia).

6. The analysis of the institutional structure was conducted on the basis of official documents, bibliography, and internet search. It also includes organisational flow-charts by country for most of the NMS. The study only reports about the aspects of the analysis relevant to its specific aims. The analysis stems from official criteria adopted at EU level and adapted to study need. The methodology created by the European Commission in 2002, namely the 'Key Indicators for Candidate Countries to Effectively Manage Structural Funds' (Principal Report, Final Report, NEI, Rotterdam, 2002) has been taken as basis for both pre- and post-accession periods. Accordingly, to elaborate the related parts (Pre-accession Rural Development policy: the SAPARD; and "Implementation of the Rural Development policy in the NMS") of the chapter in question (Chapter 2), the recommendations of the NEI Report and the Capability Management Grid has been taken as reference (see the Table below).

Key indicators to effectively manage EU Rural Development Funds

Indicators	*Design*			*Functioning*
	Structures	*Human resources*	*Systems & Tools*	
Management	Designation of MAs	Staffing of MAs	Arrangement on delegating tasks	Existence of a modern civil service
Programming	Partnership already present	Capacity to carry out programming	Guidelines/manuals for programming exist	Existence and quality of the development plan
Implementation	Assignment of Intermediate Bodies	Staffing of IB	Existence of operational project development and management process	Absorption of and project pipeline for pre-accession funds
Monitoring and Evaluation	Designation of monitoring and evaluation responsibilities	Availability of independent evaluation expertise	Existence of computerised monitoring information system	Functioning of the monitoring system
Financial management & control	Designation of Paying Authorities and functions	Accounting and auditing expertise secured	Existence of accounting system and financial procedures secured	Established practice in dealing with financial irregularities

Source: adapted from "Key Indicators for Candidate Countries to Effectively Manage Structural Funds", Principal Report, Final Report, NEI, Rotterdam, 2002.

On the basis of the Capability Management Grid, the assessment of the administrative capacity to effectively manage the Funds can be distinguished in a horizontal and a vertical assessment. Originally, within each category, assessments result in assignment to one out of four categories: category A (at least 90% of maximum score), category B (at least 75% of maximum score), category C (at least 50% of maximum score) or category D (below 50% of maximum score). In the present case, the system for assessment has been simplified due to lack of information necessary to follow the original assessment approach. The results of the simplified assessment are set out in the following Table, including the four category set up to assess NMS administrative and absorption capacity: strong, satisfactory, sufficient and inadequate.

Simplified assessment of NMS administrative capacity to manage the RD programmes

Assessment	*SAPARD 2000-2003*	*SAPARD 2004-2006*	*RD 2004-2006*
Horizontal assessment			
Management	Inadequate	Sufficient	**Satisfactory** (thanks to the SAPARD experience).
Programming	Sufficient	Sufficient	**Satisfactory** (thanks to the SAPARD experience. However, designating of eligibility criteria and application procedure are to be improved).
Implementation	Inadequate	Sufficient	**Sufficient:** technical capacity, IT skills, strategic knowledge of EU policies are to be improved.
Monitoring and Evaluation	Inadequate	Sufficient	**Sufficient**: serious shortcomings are still present. Lack of quality monitoring data.
Financial Management and Control	Sufficient	Sufficient	**Satisfactory**: but staff expertise is to be improved, time for processing applications is to be reduced.
Vertical assessment			
Structures	Sufficient	Sufficient	**Satisfactory**: but partnership and monitoring to be improved.
Human resources	Inadequate	Sufficient	**Sufficient**: need to increase the number of expert and evaluator staff.
Systems and Tools	Inadequate	Sufficient	**Satisfactory**: but information dissemination, publicity, and application procedure to be improved.
Functioning	Inadequate	Sufficient	**Sufficient**: staff satisfaction to be improved, stable strategic/political basis for planning needs to be created. Reporting needs to be improved.

Source: DEIAGRA elaboration on European Commission 'Key Indicators for Candidate Countries to Effectively Manage Structural Funds' Principal Report, Final Report, NEI, Rotterdam, 2002

1. Annex to Chapter 1

1.1. Chapter 1 Tables

Table 1.1. Basic data on territory and population

Countries	**Land Area*		** Population (year 2005)*			***% distribution of population (2003)*		
	sq km	*%*	*Inhabitants*	*%*	*inhab./sq km*	*rural regions*	*intermed. regions*	*urban regions*
Czech Republic	78,867	10.7	10,220,577	13.8	129.6	5.1	83.5	11.4
Estonia	45,227	6.1	1,347,510	1.8	29.8	10.5	76.5	13.0
Cyprus	9,251	1.3	749,175	1.0	81.0	0.0	100.0	0.0
Latvia	64,589	8.7	2,306,434	3.1	35.7	38.8	29.5	31.7
Lithuania	65,300	8.8	3,425,324	4.6	52.5	44.3	55.7	0.0
Hungary	93,034	12.6	10,097,549	13.6	108.5	47.1	36.0	16.9
Malta	316	0.0	402,668	0.5	1,274.3	0.0	0.0	100.0
Poland	312,685	42.3	38,173,835	51.5	122.1	39.6	37.5	22.9
Slovenia	20,273	2.7	1,997,590	2.7	98.5	61.7	38.3	0.0
Slovakia	49,047	6.6	5,384,822	7.3	109.8	25.5	63.4	11.1
NMS-10	**738,589**	**100.0**	**74,105,484**	**100.0**	**100.3**	**34.5**	**47.2**	**18.2**
EU-15	3,236,454	-	387,382,243	-	119.7	15.5	35.9	48.6
NMS-10/EU-15	**22.8%**	-	**19.1%**	-	**83.8%**	-	-	-

*Sources: DEIAGRA elaboration from *Eurostat Database and **EU Commission, 2006-c.*

Table1.2. Basic socioeconomic data (Year 2005)

Country	*GDP at market prices*		*2001-2005 GDP real growth (% yearly average)*	*Foreign trade balance (as % of GDP)*	*GDP per capita*		*GDP-PPS per capita*		*Unem-ployment rate %*	*food expenditure as % of total expenditure of households*
	Mio EUR	*%*			*EUR*	*as % of EU-15 value*	*EUR*	*as % of EU-15 value*		
Czech Republic	99,733.4	17.8	3.3	1.3	9,758	36.7	17,100	67.3	7.9	16.1
Estonia	11,060.7	2.0	7.6	-17.2	8,208	30.9	13,400	52.8	7.9	18.2
Cyprus	13,629.0	2.4	2.5	-28.6	18,192	68.5	19,500	76.8	5.3	15.2
Latvia	12,837.3	2.3	7.3	-22.1	5,566	21.0	11,000	43.3	8.9	22.0**
Lithuania	20,621.0	3.7	7.2	-14.6	6,020	22.7	12,200	48.0	8.3	26.1
Hungary	88,799.7	15.8	3.8	-3.3	8,794	33.1	14,300	56.3	7.2	16.9
Malta	4,554.1	0.8	0.5	-23.3	11,310	42.6	16,200	63.8	7.3	16.5
Poland	243,764.8	43.5	3.0	-4.0	6,386	24.0	11,700	46.1	17.7	19.1
Slovenia	27,633.7	4.9	3.1	-3.2	13,834	52.1	18,700	73.6	6.5	14.9
Slovakia	38,113.2	6.8	4.2	-7.1	7,078	26.7	12,900	50.8	16.3	18.3
NMS-10	**560,746.9**	**100.0**	**3.4**	-	**7,567**	**28.5**	**13.210**	**52.0**	**13.4**	-
EU-15	10,286,335.4	-	1.2	*1.0	26,553	100.0	25,400	100.0	7.9	12.0
NMS-10/EU-15	**5.5%**	-	**280%**	-	**28.5%**	-	**52.0%**	-	**170%**	

**This data refers to the foreign trade balance of the whole EU-25; ** year 2003.*
Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.3 Consumer price indexes

Country	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Czech Republic	-	-	-	-	100.00	101.37	103.59	101.37	105.38	105.49
Estonia	92.90	96.43	99.53	97.76	100.00	108.72	112.61	110.44	115.28	119.19
Cyprus	89.26	93.84	96.19	95.91	100.00	104.05	109.85	115.44	120.34	123.73
Latvia	98.00	98.80	99.57	99.77	100.00	105.40	109.35	112.41	121.00	132.57
Lithuania	99.53	106.13	105.13	101.99	100.00	104.45	103.76	99.89	102.61	106.80
Hungary	-	-	-	-	100.00	104.69	109.46	110.78	117.20	119.12
Malta	96.53	98.58	99.70	98.98	100.00	104.07	105.72	107.93	107.18	109.03
Poland	83.10	91.40	92.50	93.40	100.00	104.82	105.38	107.51	109.75	112.11
Slovenia	-	-	-	-	100.00	109.72	117.89	123.06	123.12	121.94
Slovakia	84.73	88.85	93.07	95.30	100.00	105.89	107.26	110.80	116.47	116.09
NMS 10	**90.45**	**94.88**	**97.40**	**96.74**	**100.00**	**105.39**	**107.86**	**108.85**	**113.08**	**115.73**
EU15	97.25	97.82	98.56	99.00	100.00	105.06	107.94	110.15	111.34	112.15

Source: Eurostat

Table 1.4 Role of agriculture in NMS economy (year 2005)

Country	*Active persons in the agricultural sector*		*Share of agricultural employment in total employment (%)*	*Share of agriculture in total GVA (%)*	*GVA per agricultural active (000 EUR)*	*GVA per agricultural active on average GVA per active of all sectors (%)*
	Active persons (000)	*%*				
Czech Republic	199	5.5	4.0%	2.9%	13.0	72.9%
Estonia	32	0.9	5.3%	3.7%	11.3	70.4%
Cyprus	18	0.5	4.9%	2.9%	19.6	58.6%
Latvia	115	3.2	11.2%	4.1%	4.1	36.6%
Lithuania	204	5.6	14.0%	5.7%	5.2	40.6%
Hungary	189	5.2	4.9%	4.3%	17.4	88.8%
Malta	4	0.1	2.7%	2.5%	23.7	93.0%
Poland	2,715	74.5	19.2%	4.8%	3.8	24.9%
Slovenia	92	2.5	10.0%	2.5%	6.7	25.3%
Slovakia	76	2.1	3.6%	4.3%	19.3	119.2%
NMS-10	**3,644**	**100.0**	**12.3%**	**4.2%**	**5.6**	**33.8%**
EU-15	6,348	-	3.7%	1.8%	25.9	48.9%
NMS-10 / EU-15	**57.4%**	**-**	**3.4**	**2.3**	**21.7%**	**-**

Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.5. Utilised Agricultural Area (UAA) and agricultural land use in the NMS (year 2005)

Country	*Utilised Agricultural Area*		*Share of UAA in total country area*	*Distribution of the UAA by type of use (%)*			
	000 ha	*%*		*Arable land*	*Permanent crops*	*Permanent pasture*	*total UAA*
Czech Republic	3,557.8	11.7	45.1%	74.3	1.1	24.6	100.0
Estonia	828.9	2.7	18.3%	71.0	0.4	28.6	100.0
Cyprus	151.5	0.5	16.4%	72.8	26.9	0.3	100.0
Latvia	1,701.7	5.6	26.3%	63.3	1.5	35.2	100.0
Lithuania	2,792.0	9.2	42.8%	67.1	1.0	31.9	100.0
Hungary	4,266.6	14.0	45.9%	85.1	3.9	11.0	100.0
Malta	10.3	0.0	32.5%	89.4	10.6	0.0	100.0
Poland	14,754.9	48.5	47.2%	77.3	2.2	20.5	100.0
Slovenia	485.5	1.6	23.9%	36.2	5.7	58.1	100.0
Slovakia	1,879.5	6.2	38.3%	70.4	1.4	28.2	100.0
NMS-10	**30,428.6**	**100.0**	**41.2%**	**75.1**	**2.3**	**22.7**	**100.0**
EU-15	124,785.7	-	38.6%	56.5	7.8	35.6	100.0
NMS-10 / EU-15	**24.4%**	**-**	**-**	**32.4%**	**7.1%**	**15.5%**	**24.4%**

Source: DEIAGRA elaboration from Eurostat database

Table 1.6 The agricultural holdings and their size in the NMS (year 2005)

Country	*Total agricultural holdings*			*Holdings < 5 ha UAA*		*Holdings > 100 ha UAA*		
	000	*%*	*Average size ha*	*% of total holdings*	*% of total UAA*	*% of total holdings*	*% of total UAA*	*Average size ha*
Czech Republic	42.25	1.1	84.21	53.0%	0.9%	10.1%	88.3%	737.86
Estonia	27.75	0.7	29.87	45.3%	3.8%	4.8%	65.4%	410.61
Cyprus	45.17	1.2	3.35	87.3%	31.0%	0.2%	13.8%	189.73
Latvia	128.67	3.3	13.23	47.3%	7.7%	1.5%	32.7%	293.10
Lithuania	252.95	6.6	11.04	51.4%	13.1%	1.0%	28.4%	321.27
Hungary	714.79	18.6	5.97	89.7%	8.4%	0.8%	61.9%	437.18
Malta	11.07	0.3	0.93	97.9%	82.8%	0.0%	0.0%	-
Poland	2,476.47	64.4	5.96	70.7%	17.6%	0.3%	17.4%	355.71
Slovenia	77.17	2.0	6.29	59.4%	23.5%	0.1%	6.9%	335.60
Slovakia	68.49	1.8	27.44	90.0%	2.3%	2.9%	91.8%	871.64
NMS-10	3,844.78	**100.0**	**7.91**	**72.2%**	**12.2%**	**0.7%**	**39.5%**	**473.37**
EU-15	5,843.15	-	21.36	54.6%	4.5%	4.4%	46.8%	229.54
NMS-10 / EU-15	**65.8%**	**-**	**37.1%**	**87.0%**	**65.7%**	**10.0%**	**20.6%**	**2.1**

Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.7. Labour input in NMS agricultural holdings (year 2005)

Country	*Total labour input*		*Distribution of AWU by type of labour force*				
			Regularly employed		*Non regularly employed*	*Other*	*Total*
	000 AWU	*%*	*Household members %*	*Employees %*	*%*	*%*	*%*
Czech Republic	153.1	4.4	24.6	68.2	6.4	0.8	100.0
Estonia	37.1	1.1	63.2	33.3	2.8	0.7	100.0
Cyprus	29.1	0.8	71.8	15.7	11.1	1.4	100.0
Latvia	137.3	3.9	86.3	11.2	2.5	0.0	100.0
Lithuania	222.7	6.3	86.7	10.0	2.8	0.5	100.0
Hungary	462.7	13.2	79.3	18.4	2.3	0.0	100.0
Malta	4.1	0.1	90.4	8.8	0.5	0.2	100.0
Poland	2,276.8	64.7	94.3	2.7	2.9	0.1	100.0
Slovenia	95.3	2.7	91.1	3.5	5.1	0.3	100.0
Slovakia	100.0	2.8	42.0	53.7	3.0	1.2	100.0
NMS	**3,518.1**	**100.0**	**86.4**	**10.3**	**3.1**	**0.2**	**100.0**
EU-15	6,091.2	-	71.0	16.7	10.5	1.8	100.0
NMS / EU-15	**57.8%**	**-**	**70.3%**	**35.6%**	**17.0%**	**7.0%**	**57.8%**

Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.8. Age structure of agricultural labour input from farmers' households (year 2005)

Country	*% distribution of family labour force (AWU)*					
	< 35 years	*35 – 44 years*	*45 – 54 years*	*55 – 64 years*	*> 64 years*	*total*
Czech Republic	17.2	17.4	25.2	25.0	15.3	100.0
Estonia	14.2	16.5	20.3	24.0	25.1	100.0
Cyprus	8.1	13.6	26.4	26.6	25.2	100.0
Latvia	14.1	18.8	21.7	21.8	23.5	100.0
Lithuania	12.4	21.2	21.5	21.2	23.6	100.0
Hungary	13.2	15.4	24.8	23.8	22.8	100.0
Malta	16.5	18.5	28.8	23.4	12.9	100.0
Poland	22.0	22.5	29.0	15.3	11.3	100.0
Slovenia	17.9	18.4	23.1	21.3	19.3	100.0
Slovakia	16.8	16.0	23.0	23.2	21.1	100.0
NMS	**19.6**	**21.0**	**27.4**	**17.5**	**14.5**	**100.0**
EU-15	12.1	19.4	23.5	22.5	22.4	100.0
NMS / EU-15	**113.7%**	**76.3%**	**82.1%**	**54.8%**	**45.9%**	**70.6%**

Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.9. Livestock heads in the NMS and percentage distribution by country (year 2005)

Country	*Cattle*		*Sheep and Goats %*	*Horses %*	*Pigs %*	*Poultry %*
	Total %	*Dairy cows %*				
Czech Republic	13.8	9.4	4.8	4.8	10.6	10.4
Estonia	2.5	2.5	2.1	1.0	1.2	0.8
Cyprus	0.6	0.5	16.8	0.3	1.5	1.7
Latvia	3.6	3.7	1.8	2.5	1.5	1.6
Lithuania	9.8	10.6	2.8	13.1	4.2	3.8
Hungary	6.9	5.1	43.6	13.8	13.5	16.2
Malta	0.2	0.2	0.5	0.3	0.3	0.4
Poland	53.2	61.1	13.6	59.4	62.0	59.1
Slovenia	4.5	2.8	4.8	3.7	1.8	1.3
Slovakia	5.0	4.1	9.3	1.2	3.5	4.6
NMS	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
NMS (heads)*	**10,309,500**	**4,667,510**	**3,406,890**	**522,320**	**28,587,700**	**256,140**
EU-15 (heads)*	76,315,280	18,411,690	104,326,540	2,230,970	120,121,070	1,161,720
NMS / EU-15	**13.5%**	**25.4%**	**3.3%**	**23.4%**	**23.8%**	**22.0%**

** 000 heads for poultry.*
Sources: DEIAGRA elaboration from Eurostat Database.

Table1.10 Indicative percentage distribution of Livestock Units (LSU) by type of livestock in the NMS (year 2005)*

Country	*Cattle*		*Sheep and Goats %*	*Horses %*	*Pigs %*	*Poultry %*	*Total LSU %*
	Total %	*Dairy cows %*					
Czech Republic	55.9	17.3	0.6	0.6	35.5	7.3	100.0
Estonia	66.5	29.3	1.8	0.8	27.1	3.8	100.0
Cyprus	21.5	8.8	20.8	0.4	46.3	11.1	100.0
Latvia	68.4	31.9	1.1	1.4	23.9	5.2	100.0
Lithuania	67.8	33.2	0.6	2.8	24.2	4.6	100.0
Hungary	30.1	10.1	6.3	1.8	49.3	12.4	100.0
Malta	38.5	14.1	3.1	1.5	42.6	14.3	100.0
Poland	45.3	23.6	0.4	1.5	44.0	8.8	100.0
Slovenia	69.5	19.7	2.4	1.7	22.8	3.5	100.0
Slovakia	55.0	20.7	3.4	0.4	32.3	8.9	100.0
NMS	**48.3**	**21.9**	**1.6**	**1.5**	**40.2**	**8.4**	**100.0**
EU-15	57.7	13.9	7.9	1.0	27.2	6.1	100.0
NMS / EU-15	**13.5%**	**25.4%**	**3.3%**	**23.4%**	**23.8%**	**22.0%**	**16.1%**

** Livestock Units have been approximately estimated using the following EU-FADN coefficients: 1 for cattle, 0.1 for sheep and goats, 0.3 for pigs, 0.007 for poultry, 0.6 for horses.*
Sources: DEIAGRA elaboration from Eurostat Database.

Table1.11 Percentage distribution of Livestock Units (LSU) by size class of the herds in the NMS (year 2005)

Country	*< 20 LSU %*	*20 - 49 LSU %*	*50 - 99 LSU %*	*100 - 499 LSU %*	*> 499 LSU %*	*Total*	*% distribution of total LSU by country*
Czech Republic	4.2	3.3	3.2	15.7	73.5	100.0	11.0
Estonia	14.7	6.8	5.2	21.5	51.8	100.0	1.7
Cyprus	7.7	8.2	8.1	27.5	48.5	100.0	1.3
Latvia	46.6	11.7	6.6	9.1	26.1	100.0	2.4
Lithuania	64.5	6.9	2.7	4.5	21.3	100.0	6.9
Hungary	31.2	5.1	3.3	11.4	48.9	100.0	13.3
Malta	9.7	8.9	23.5	57.9	0.0	100.0	0.2
Poland	46.1	22.9	8.2	10.9	11.9	100.0	56.2
Slovenia	52.6	22.2	7.8	6.4	11.0	100.0	2.8
Slovakia	9.0	1.8	2.2	19.5	67.5	100.0	4.2
NMS	**38.3**	**15.6**	**6.3**	**11.7**	**28.0**	**100.0**	**100.0**
EU-15	6.4	11.5	17.2	42.3	22.7	100.0	-
NMS / EU-15	**102.6**	**23.1**	**6.3**	**4.7**	**21.0**	**17.0**	-

Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.12. Main structural indicators of the agricultural sector in the NMS (year 2005)

Country	*UAA per AWU (ha)*	*% of the EU-15 average*			
		UAA per AWU	*LSU per AWU*	*Tractors per AWU*	*LSU/UAA*
Czech Republic	23.24	113.4%	74.8%	56.3%	65.9%
Estonia	22.32	108.9%	47.0%	77.7%	43.1%
Cyprus	5.21	25.4%	46.3%	43.0%	182.0%
Latvia	12.40	60.5%	18.3%	38.1%	30.3%
Lithuania	12.54	61.2%	32.0%	54.0%	52.2%
Hungary	9.22	45.0%	29.7%	27.2%	66.0%
Malta	2.52	12.3%	52.2%	40.9%	424.4%
Poland	6.48	31.6%	25.6%	61.2%	80.9%
Slovenia	5.10	24.9%	30.3%	107.8%	121.9%
Slovakia	18.79	91.7%	43.2%	35.9%	47.1%
NMS	**8.65**	**42.2%**	**29.5% (5.34 LSU)**	**55.7% (0.56 tractors)**	**69.8% (0.62 LSU/ha)**
EU-15	20.49	100.0%	100.0% (18.12 LSU)	100.0% (1.01 tractors)	100.0% (0.88 LSU/ha)

Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.13. Indexes of cereal average yields in the NMS (EU-15 average = 100)

Country	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Czech Republic	68.21	82.53	76.60	76.64	89.65	85.82
Estonia	36.92	37.20	35.78	37.30	38.27	48.65
Cyprus	16.24	41.56	43.49	43.95	27.56	17.65
Latvia	38.35	38.20	43.80	42.24	39.85	50.61
Lithuania	47.31	45.76	48.88	59.09	53.46	53.09
Hungary	n.a.	n.a.	70.02	58.99	91.82	99.74
Poland	44.21	55.82	57.27	55.63	58.11	58.38
Slovenia	83.48	86.66	108.57	77.95	96.01	108.91
Slovakia	45.80	68.96	68.82	60.39	76.06	80.95
EU-15	100.00	100.00	100.00	100.00	100.00	100.00

Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.14 Indexes of agricultural input use per ha of UAA in the NMS* (year 2000 = 100)

Country	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Czech Republic	100.0	99.7	114.9	106.7	118.7	122.5
Estonia	100.0	120.1	139.3	116.8	132.5	140.0
Lithuania	100.0	124.3	118.2	134.0	132.8	123.0
Hungary	100.0	104.9	105.1	102.5	103.1	94.3
Malta	100.0	97.4	100.8	89.2	93.9	93.8
Poland	100.0	100.6	109.4	113.0	117.2	116.9
Slovenia	100.0	100.7	103.4	101.7	105.9	103.1
Slovakia	100.0	112.4	113.5	118.8	137.2	125.8
NMS*	**100.0**	**102.3**	**111.2**	**112.3**	**117.1**	**113.7**
EU-15	100.0	101.7	100.4	99.0	100.2	100.8

** Based on variations in the expenditure for intermediate consumption at constant prices (year 2000); data from Cyprus and Latvia are not included.*
Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.15. Price variations of agricultural products and agricultural inputs in the NMS after the Accession (deflated values)

Products	*Year*	*Average variation as percentage on previous year (deflated values)*										
		Czech Rep.	*Estonia*	*Cyprus*	*Latvia*	*Lithuan.*	*Hung.*	*Malta*	*Poland*	*Slovenia*	*Slovakia*	*EU-15*
Cereals	2004	12.1	n.a.	n.a.	0.6	-0.7	-25.8	n.a.	-3.7	-14.7	-4.4	-1
	2005	-28	-14.4	-23.1	-14.9	-18.3	-12.9	n.a.	-24	-14.4	-16.4	-14.6
Industrial Crops	2004	0.5	n.a.	n.a.	33.1	0.1	-4.1	n.a.	17.9	7.8	8.2	-3.8
	2005	-14.9	-16	-2	7.9	5.8	-0.6	n.a.	-9.6	-7.1	-8.7	-9.3
Vegetables	2004	-17.8	n.a.	n.a.	-1.1	-27.8	-1.9	-16.7	-20.5	-28.6	-23	-10.6
	2005	3.9	5.2	3.7	6.6	22.2	3.7	-1.5	18.6	10	0.1	4
Potatoes	2004	14.9	n.a.	n.a.	10	-8.1	-22.2	-18.4	-8.3	-44.5	-3.7	-5.1
	2005	-46	23.6	11.9	31.2	50.4	-27.2	-2.3	21.3	-15.5	-12.6	-14.5
Fruit	2004	-9.7	n.a.	n.a.	84.3	-14.9	-29.7	-25.6	-14.9	-17.6	-17.7	-5.4
	2005	1.9	0.7	5	1.7	-19.4	17.5	-13.4	7.8	-0.1	-11.1	-5.7
Crop products	**2004**	**6**	**n.a.**	**n.a.**	**8.7**	**-8**	**-19.3**	**-18**	**-4.7**	**-12.8**	**-1.6**	**-5.2**
	2005	**-22**	**-5.1**	**-1.8**	**1.6**	**9.9**	**-4**	**-2.8**	**-4.8**	**-1.1**	**-13.2**	**-4.8**
Cattle	2004	4.5	n.a.	n.a.	9.8	28.3	5.4	6.1	28	-0.7	-7.5	0.7
	2005	11.9	17.5	-4.5	30	27.4	16.1	4.5	16.3	10.7	1.5	2.6
Calves	2004	10.4	n.a.	n.a.	n.a.	22.7	10.8	-2.6	31.3	-5.5	-6.9	0.9
	2005	15.2	10.6	-1.2	n.a.	25.4	20.6	-2.5	27.7	1.9	1.4	-6.6
Milk	2004	-0.2	n.a.	n.a.	28.3	16.6	-15.4	-2.5	17.4	-4.4	-5.7	-3.8
	2005	1.8	0.4	-1.3	10.8	14.4	-1.2	-13.9	4.1	-3.1	0.3	-3
Pigs	2004	5.4	n.a.	n.a.	4.9	8.8	7.6	-2.6	27.3	-0.3	-8.7	6.6
	2005	0.7	0.7	-3.9	-0.7	-4.1	1.5	-2.5	-11.5	3.1	1.1	-0.5
Sheep and goats	2004	-7.3	n.a.	n.a.	15.3	-5.8	-7.1	-6.1	4.1	-11.4	-8	-1.7
	2005	-5.5	n.a.	12	0.9	-15.8	4.8	-4.5	-9.6	-1	-1.9	-1.6
Poultry	2004	2	n.a.	n.a.	-3.3	-9.8	-2	-2.6	6.5	4.5	-6.9	-0.9
	2005	-4.8	16.6	-2	1.9	-3	-6.5	-4.6	-6.6	-10.2	-5.2	-4.7
Eggs	2004	6.8	n.a.	n.a.	-7.4	-18	4.9	-2.6	-15.2	3.8	-2.1	-16.1
	2005	-22	1.6	3.8	-3.8	3.2	-6.4	-2.5	-10	0.3	-14.5	-9.9
Livestock products	**2004**	**2.9**	**n.a.**	**n.a.**	**13.5**	**11.4**	**-2.7**	**-1.7**	**17.8**	**-0.5**	**-6.7**	**-0.9**
	2005	**0.2**	**1.6**	**-0.6**	**8.2**	**10.6**	**-1.6**	**-5.3**	**-3.1**	**-1.1**	**-1.3**	**-1.8**
Agric. products	**2004**	**4.1**	**n.a.**	**n.a.**	**11.6**	**-0.2**	**-11.4**	**-9.3**	**5.6**	**-4.6**	**-4.8**	**-3.1**
	2005	**-8.3**	**0.5**	**-1.3**	**5.8**	**10.2**	**-2.7**	**-4.2**	**-4.0**	**-1.1**	**-5.1**	**-3.4**
A) general level of 2005 real prices (2003 = 100)		95.5	n.a.	n.a.	118.1	110.0	86.2	86.9	101.4	94.4	90.3	93.6
Consump. inputs	2004	4.7	n.a.	n.a.	1.8	-4.3	2.4	3.6	3.4	4.6	n.a.	2.4
	2005	-1.7	2.8	6.1	9.5	5.9	-4.6	0.2	0.2	-2.4	-2.4	-6.3
Invest. Inputs	2004	-0.4	n.a.	n.a.	0.6	n.a.	-0.8	-1.6	11.5	5.9	n.a.	-0.1
	2005	1.6	n.a.	1.5	15.2	n.a.	1	-6	-7	1.8	0.1	-0.2
Total inputs	**2004**	**3.9**	**n.a.**	**n.a.**	**1.7**	**-4.3**	**1.9**	**3.5**	**3.8**	**5.1**	**n.a.**	**2**
	2005	**-1.2**	**n.a.**	**5.8**	**10.4**	**5.9**	**-3.7**	**0.2**	**0.2**	**-1.1**	**-1.9**	**-5.4**
B) general level of 2005 real prices (2003 = 100)		102.7	n.a.	n.a.	112.3	101.3	98.1	103.7	104.0	103.9	n.a.	96.5
Output/input ratio (A / B)		**0.93**	**n.a.**	**n.a.**	**1.05**	**1.09**	**0.88**	**0.84**	**0.97**	**0.91**	**n.a.**	**0.97**

Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.16 Percentage distribution of agricultural output value by type of product in the NMS (year 2005)

Products	*Czech Republic*	*Estonia*	*Cyprus*	*Latvia*	*Lithuania*	*Hungary*	*Malta*	*Poland*	*Slovenia*	*Slovakia*	***NMS***	*EU-15*	***NMS/EU-15***
Cereals	19.7	13.2	2.4	17.3	20.0	26.3	-	16.8	7.5	20.1	**18.6**	9.6	**21.5%**
Industrial crops	13.5	3.8	0.4	7.0	6.2	9.3	-	6.6	2.6	10.2	**7.7**	4.6	**18.6%**
Forages	7.5	8.4	2.4	7.9	9.2	2.3	2.5	6.8	16.6	3.4	**6.2**	5.6	**12.2%**
Vegetables	3.8	4.7	14.6	4.9	5.6	9.3	22.9	7.4	6.4	4.8	**7.2**	15.2	**5.2%**
Potatoes	2.5	5.3	6.2	5.9	5.5	1.3	5.8	4.0	1.3	1.6	**3.2**	1.8	**19.5%**
Fruit, wine, olive oil	1.6	1.5	17.4	2.2	0.5	6.0	4.2	4.8	15.7	1.8	**4.8**	14.4	**3.7%**
Other crop prod.	0.4	0.1	1.3	0.8	2.2	0.5	-	0.1	0.0	2.6	**0.5**	0.9	**6.2%**
Crop output	**49.1**	**36.9**	**44.6**	**46.1**	**49.2**	**55.0**	**35.4**	**46.3**	**50.1**	**44.5**	**48.3**	**52.2**	**10.2%**
Cattle	4.8	4.6	2.0	4.4	7.2	2.1	3.5	5.2	14.5	6.8	**5.0**	9.7	**5.7%**
Milk	21.0	29.5	17.9	21.4	21.4	8.4	13.4	16.3	15.3	14.5	**15.7**	13.7	**12.7%**
Pigs	11.6	11.0	9.3	7.3	9.9	11.2	14.0	16.9	8.4	12.0	**13.8**	8.7	**17.5%**
Sheep and goats	0.1	0.3	5.1	0.2	0.1	0.9	0.3	0.1	0.9	0.7	**0.4**	2.0	**2.2%**
Poultry	6.3	3.2	10.5	1.3	3.8	9.5	5.7	7.4	6.1	5.4	**7.2**	3.8	**20.9%**
Eggs	1.9	1.8	2.4	3.5	2.4	2.5	7.0	3.8	1.6	2.8	**3.1**	1.4	**23.7%**
Other livestock prod.	0.1	1.2	2.4	2.0	0.8	2.2	14.6	0.6	1.4	3.0	**1.2**	1.7	**7.6%**
Livestock output	**45.8**	**51.6**	**49.5**	**40.1**	**45.7**	**36.6**	**58.5**	**50.4**	**48.1**	**45.2**	**46.3**	**41.1**	**12.5%**
Processing farm prod. and agr. services	5.1	11.5	5.9	13.8	5.2	8.4	6.1	3.3	1.7	10.3	**5.4**	6.8	**18.6%**
Total output	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**11.1%**
Total output value (mio EUR)	**3,418.9**	**526.5**	**621.7**	**751.5**	**1,611.3**	**6,128.9**	**124.9**	**15,057.0**	**1,072.6**	**1,693.1**	**31,006.3**	**280,562.4**	-
% distribution of total value by country	11.0	1.7	1.9	2.4	5.2	19.8	0.4	48.6	3.5	5.5	**100.0**	-	-

Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.17. Indexes of agricultural output in the NMS* (year 2000 = 100)

Products	*Average 2001-2003 (2000 = 100) NMS**	*average 2004-2005 (2000 = 100)*									
		NMS*	*EU-15*	*Czech Republic*	*Estonia*	*Lithuania*	*Hungary*	*Malta*	*Poland*	*Slovenia*	*Slovakia*
Cereals	116.8	**159.6**	89.4	160.4	104.2	109.4	166.2	-	158.0	135.1	237.6
Industrial crops	107.5	**156.6**	98.1	153.9	185.1	148.0	204.6	-	133.0	113.5	233.0
Forages	95.8	**120.8**	95.2	95.3	97.9	102.1	132.9	84.2	127.2	135.1	190.1
Vegetables	99.1	**105.5**	102.3	159.3	130.2	142.1	106.5	109.6	98.9	110.7	79.1
Potatoes	68.4	**56.5**	94.8	59.1	36.4	71.2	82.9	70.9	51.1	84.9	79.2
Fruit	98.4	**99.0**	103.6	55.9	68.4	35.9	65.0	121.4	131.4	89.6	72.1
Other crop products	80.2	**93.4**	97.9	207.9	56.1	54.3	42.7	-	128.5	149.2	232.4
Crop output	**102.7**	**126.9**	**99.4**	**129.3**	**93.5**	**108.5**	**139.9**	**101.8**	**121.1**	**123.3**	**169.7**
Cattle	95.1	**96.9**	92.8	62.3	90.9	111.1	80.9	83.3	119.7	93.1	84.9
Milk	101.3	**103.7**	99.6	106.3	106.1	118.0	93.1	90.9	105.4	95.5	96.4
Pigs	104.1	**95.8**	100.3	79.5	129.2	138.0	76.2	91.2	104.1	106.4	75.5
Sheep and goats	100.4	**126.8**	88.4	176.2	160.6	110.5	101.9	110.2	183.7	127.8	172.9
Poultry	117.7	**133.1**	102.2	158.0	196.9	217.4	87.0	87.1	164.3	99.6	103.1
Eggs	105.2	**102.5**	103.5	68.6	76.0	138.0	96.2	100.8	120.2	64.9	34.5
Livestock output	**104.2**	**104.3**	**97.9**	**92.5**	**113.3**	**127.6**	**86.1**	**94.1**	**114.2**	**96.8**	**88.5**
Agricultural services	105.6	**104.5**	100.2	180.7	124.2	53.9	102.8	-	104.0	104.3	94.9
Processing farm prod.	97.9	**73.6**	106.4	-	107.5	121.4	63.2	143.3	57.5	-	71.7
Total output	**103.6**	**116.0**	**99.2**	**114.5**	**105.8**	**115.7**	**114.7**	**99.1**	**117.9**	**110.3**	**115.0**

** Based on output variations at constant prices (year 2000), data from Cyprus and Latvia are not included.*
Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.18. Indexes of agricultural output per ha of UAA in the NMS (EU-15 average of current year = 100)

Country	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Czech Republic	31.4	34.2	41.1	36.2	43.4	43.6
Estonia	16.7	20.0	25.5	22.0	25.1	27.2
Cyprus	190.0	204.5	219.5	171.9	163.9	167.0
Latvia	8.4	9.6	15.3	14.7	16.0	18.3
Lithuania	15.4	18.0	18.6	21.9	22.8	25.9
Hungary	35.3	39.9	42.9	42.3	48.3	48.3
Malta	613.7	616.8	624.7	520.3	516.3	542.4
Poland	31.8	36.6	36.0	33.2	38.4	44.5
Slovenia	90.3	87.8	98.0	86.8	98.8	99.6
Slovakia	25.5	29.6	31.1	30.8	40.8	38.8
NMS	**30.1**	**34.4**	**36.6**	**34.6**	**39.8**	**43.0**
EUR / ha	636	754	794	749	898	906
EU-15	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
EUR / ha	2,113	2,195	2,167	2,168	2,255	2,108

Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.19. Real variations in the agricultural output per ha of UAA in the NMS (year 2000 = 100)

Country	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Czech Republic	100.0	102.7	118.9	112.2	129.6	141.5
Estonia	100.0	111.0	138.9	121.5	130.9	129.2
Lithuania	100.0	113.4	121.2	155.3	154.2	143.1
Hungary	100.0	110.3	103.3	103.0	128.3	119.0
Malta	100.0	96.9	99.5	88.8	94.0	93.4
Poland	100.0	104.9	113.7	117.4	132.3	134.6
Slovenia	100.0	95.8	110.2	95.6	115.4	111.3
Slovakia	100.0	111.5	119.1	114.8	149.3	135.8
NMS	**100.0**	**107.1**	**114.0**	**115.7**	**133.8**	**132.5**
EU-15	100.0	99.5	100.5	97.7	103.5	98.0

Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.20. Economic account of the agricultural sector in the NMS (year 2005)

Economic Account	*Czech Republic (mio EUR)*	*Estonia (mio EUR)*	*Cyprus (mio EUR)*	*Latvia (mio EUR)*	*Lithuania (mio EUR)*	*Hungary (mio EUR)*	*Malta (mio EUR)*	*Poland (mio EUR)*	*Slovenia (mio EUR)*	*Slovakia (mio EUR)*	*NMS (mio EUR)*	*EU-15 (mio EUR)*	*NMS/EU-15 %*
Gross output	**3,418.9**	**526.5**	**621.7**	**751.5**	**1,611.3**	**6,128.9**	**124.9**	**15,057.0**	**1,072.6**	**1,693.1**	**31,006.3**	**280,562.4**	**11.1%**
- Intermediate consumption	2,469.8	318.4	278.1	474.6	1,006.3	3,742.7	67.4	8,950.5	587.2	1,243.3	19,138.4	149,321.5	12.8%
= Gross value added*	**949.0**	**208.0**	**343.6**	**276.9**	**605.0**	**2,386.2**	**57.5**	**6,106.5**	**485.3**	**449.7**	**11,867.9**	**131,240.8**	**9.0%**
- Fixed capital consumption	388.7	49.0	15.3	60.8	145.0	757.8	4.0	1,353.3	202.0	181.6	3,157.5	41,857.0	7.5%
= Net value added*	**560.3**	**159.0**	**328.3**	**216.1**	**459.9**	**1,628.4**	**53.5**	**4,753.2**	**283.4**	**268.1**	**8,710.4**	**89,383.8**	**9.7%**
+ Subsidies on production	638.8	68.0	-	115.4	35.9	673.4	6.5	1,150.1	116.4	168.1	2,972.7	25,940.1	11.5%
- Taxes on production	161.9	3.1	-	7.8	0.4	27.5	-	353.0	-	33.7	587.3	3,761.1	15.6%
= Factor income**	**1,037.2**	**224.0**	**328.3**	**323.8**	**495.5**	**2,274.4**	**60.0**	**5,550.3**	**399.8**	**402.5**	**11,095.8**	**111,562.9**	**9.9%**
- Wages of employees	649.5	77.4	247.9	50.9	136.4	702.1	2.8	820.5	78.1	329.8	3,095.3	30,131.7	10.3%
= Operating surplus	**387.7**	**146.6**	**80.4**	**272.9**	**359.1**	**1,572.3**	**57.3**	**4,729.8**	**321.7**	**72.7**	**8,000.5**	**81,431.2**	**9.8%**
- Rent paid	102.6	7.1	10.1	6.1	20.6	167.9	0.7	88.0	8.1	31.1	442.2	7,423.4	6.0%
- Net interest paid	30.5	8.5	10.6	1.1	8.0	87.0	1.0	207.5	11.2	19.7	384.9	8,335.6	4.6%
= Entrepreneurial income	**254.6**	**131.0**	**59.8**	**265.7**	**330.6**	**1,317.4**	**55.6**	**4,434.4**	**302.3**	**21.9**	**7,173.4**	**65,672.2**	**10.9%**
Gross entrepreneurial income	643.3	180.0	75.1	326.5	475.6	2,075.2	59.6	5,787.7	504.3	203.6	10,330.9	107,529.2	9.6%
Gross fixed capital formation	444.6	162.1	-	284.8	301.2	757.9	3.4	786.3	206.2	125.9	3,072.3	45,193.8	6.8%
Net fixed capital formation	55.9	113.1	-	224.0	156.2	0.1	-0.7	-567.0	4.2	-55.8	-85.2	3,336.8	-2.6%

**Basic prices.*

***Net value added at factor cost.*

Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.21. Structure of the economic account of the agricultural sector in the NMS (year 2005)

Economic Account	Czech Republic	Estonia	Cyprus	Latvia	Lithuania	Hungary	Malta	Poland	Slovenia	Slovakia	NMS	EU-15
Gross output	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
- Intermediate consumption	72.2	60.5	44.7	63.2	62.5	61.1	54.0	59.4	54.7	73.4	61.7	53.2
= Gross value added*	**27.8**	**39.5**	**55.3**	**36.8**	**37.5**	**38.9**	**46.0**	**40.6**	**45.3**	**26.6**	**38.3**	**46.8**
- Fixed capital consumption	11.4	9.3	2.5	8.1	9.0	12.4	3.2	9.0	18.8	10.7	10.2	14.9
= Net value added*	**16.4**	**30.2**	**52.8**	**28.8**	**28.5**	**26.6**	**42.8**	**31.6**	**26.4**	**15.8**	**28.1**	**31.9**
+ Subsidies on production	18.7	12.9	-	15.4	2.2	11.0	5.2	7.6	10.9	9.9	9.6	9.2
- Taxes on production	4.7	0.6	-	1.0	0.0	0.4	-	2.3	-	2.0	1.9	1.3
= Factor income**	**30.3**	**42.5**	**52.8**	**43.1**	**30.8**	**37.1**	**48.1**	**36.9**	**37.3**	**23.8**	**35.8**	**39.8**
- Wages of employees	19.0	14.7	39.9	6.8	8.5	11.5	2.2	5.4	7.3	19.5	10.0	10.7
= Operating surplus	**11.3**	**27.8**	**12.9**	**36.3**	**22.3**	**25.7**	**45.8**	**31.4**	**30.0**	**4.3**	**25.8**	**29.0**
- Rent paid	3.0	1.4	1.6	0.8	1.3	2.7	0.5	0.6	0.8	1.8	1.4	2.6
- Net interest paid	0.9	1.6	1.7	0.1	0.5	1.4	0.8	1.4	1.0	1.2	1.2	3.0
= Entrepreneurial income	**7.4**	**24.9**	**9.6**	**35.4**	**20.5**	**21.5**	**44.5**	**29.5**	**28.2**	**1.3**	**23.1**	**23.4**
Gross entrepreneurial income	18.8	34.2	12.1	43.4	29.5	33.9	47.7	38.4	47.0	12.0	33.3	38.3
Gross fixed capital formation	13.0	30.8	-	37.9	18.7	12.4	2.7	5.2	19.2	7.4	9.9	16.1
Net fixed capital formation	1.6	21.5	-	29.8	9.7	0.0	-0.5	-3.8	0.4	-3.3	-0.3	1.2

** Basic prices.*
*** Net value added at factor cost.*
Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.22. Indexes of real variations in main economic indicators of the agricultural sector in the NMS (year 2000 = 100)

Country	*Indicator*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Czech Republic	Gross value added	100.00	110.08	109.22	106.82	130.83	159.61
Estonia	Gross value added	100.00	87.99	95.73	106.08	97.78	109.71
Lithuania	Gross value added	100.00	78.10	105.45	141.04	144.43	146.49
Hungary	Gross value added	100.00	119.12	97.71	93.97	159.83	151.48
Malta	Gross value added	100.00	97.10	98.13	98.78	99.17	98.65
Poland	Gross value added	100.00	112.23	112.02	110.40	144.25	147.23
Slovenia	Gross value added	100.00	88.55	117.00	87.06	121.57	120.69
Slovakia	Gross value added	100.00	101.91	123.24	96.47	145.46	130.64
NMS*	Total output	100.00	104.84	104.58	101.49	116.76	115.25
	Intermediate consumption	100.00	102.01	101.80	98.59	102.41	99.43
	Gross value added	100.00	109.82	108.69	106.12	144.06	146.37
	Fixed capital consumption	100.00	98.31	102.13	98.88	100.11	95.67
	Net value added	100.00	114.72	111.28	109.00	163.31	170.37
EU-15	total output	100.00	98.91	99.79	96.75	101.81	96.52
	intermediate consumption	100.00	101.10	99.71	98.06	98.58	99.32
	Gross value added	100.00	96.76	99.72	95.34	104.88	96.15

** Data from Cyprus and Latvia are not included.*
Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.23. Main economic indicators of the agricultural sector in the NMS, average values per ha of UAA (year 2000 = 100)

Country	*Gross output*		*Intermediate consumption*		*Gross value added*	
	EUR / ha	*Index EU-15 = 100*	*EUR / ha*	*Index EU-15 = 100*	*EUR / ha*	*Index EU-15 = 100*
Czech Republic	920	43.6	685	59.6	263	26.1
Estonia	573	27.2	382	33.2	249	24.7
Cyprus	3,521	167.0	1,709	148.7	2,027	200.6
Latvia	387	18.3	274	23.8	160	15.8
Lithuania	546	25.9	355	30.9	213	21.1
Hungary	1,018	48.3	638	55.5	407	40.3
Malta	11,437	542.4	6,574	571.9	5,607	555.0
Poland	939	44.5	563	49.0	384	38.0
Slovenia	2,100	99.6	1,150	100.0	950	94.1
Slovakia	818	38.8	640	55.7	232	22.9
NMS	**906**	**43.0**	**573**	**49.8**	**355**	**35.1**
EU-15	2,108	100.0	1,150	100.0	1,010	100.0

Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.24. Variable costs and gross margin per ha of main crops in selected NMS and EU-15 countries* (2004 harvest)

Country		*Wheat (€/ha)*	*Maize (€/ha)*	*Sugar beet (€/ha)*	*Rape (€/ha)*	*Potatoes (€/ha)*
France	Variable costs	286	371	638	264	1,330
	Gross Margin	754	884	2,507	759	494
Germany	Variable costs	295	354	672	258	765
	Gross Margin	775	978	1,813	916	656
United Kingdom	Variable costs	370	-	570	345	1,656
	Gross Margin	698	-	2,118	589	3889
Czech Republic (private farms)	Variable costs	212	251	556	213	840
	Gross Margin	434	543	1,758	603	1,110
Czech Republic (cooperatives)	Variable costs	201	211	557	265	882
	Gross Margin	445	583	1,757	551	1,068
Hungary (private farms)	Variable costs	143	181	415	150	846
	Gross Margin	489	807	1,879	571	1,068
Hungary (cooperatives)	Variable costs	144	197	454	186	695
	Gross Margin	488	791	1,840	535	1,669
Poland	Variable costs	221	199	309	251	515
	Gross Margin	251	441	1,670	475	754

** Data crops harvested in the latter half of 2004. The sources of information and the methodology are the following: i) whenever actual (or early harvest forecast) average yields and prices could not be used, estimates are used; ii) area support payment rates are those applicable to crops harvested in 2004 and marketed in 2004/05 marketing year (full payment rates are used, except for the cases of penalties for overshooting base areas that may apply); iii) cost of production data are derived from a variety of sources across the Member States covered.*
Source: Graham Brookes, European arable crop profit margins, 2004-2005.

Table 1.25. Variable costs per ton of main crops in selected NMS and EU-15 countries (2004 harvest)

Country	*Wheat (€/ton)*	*Maize (€/ton)*	*Sugar beet (€/ton)*	*Rape (€/ton)*	*Potatoes (€/ton)*
France	36.71	41.59	8.32	73.33	27.71
Germany	35.93	39.60	11.79	62.47	17.76
United Kingdom	46.84	n.a.	10.18	118.97	35.54
Czech Republic	35.39	40.95	11.74	59.50	32.36
Hungary	27.88	25.42	8.34	54.55	33.98
Poland	56.81	35.54	7.52	84.51	27.84

Source: Graham Brookes, European arable crop profit margins, 2004-2005.

Table 1.26. Main economic indicators of the agricultural sector in the NMS: values per work unit and comparison with the EU-15 average (year 2005)

*Indicator**	*Czech Rep.*	*Estonia*	*Cyprus*	*Latvia*	*Lith.*	*Hung.*	*Malta*	*Poland*	*Slovenn.*	*Slovak.*	***NMS***	*EU-15*
Gross output												
- EUR / AWU	21,790	13,919	28,387	5,438	10,650	11,772	30,765	6,570	11,807	17,136	**8,828**	48,463
- % of EU-15 aver.	45.0	28.7	58.6	11.2	22.0	24.3	63.5	13.6	24.4	35.4	**18.2**	100.0
Interm. cons.												
- EUR / AWU	15,742	8,419	12,697	3,434	6,651	7,189	16,603	3,905	6,464	12,584	**5,449**	25,793
- % of EU-15 aver.	61.0	32.6	49.2	13.3	25.8	27.9	64.4	15.1	25.1	48.8	**21.1**	100.0
GVA-bp												
- EUR / AWU	6,049	5,500	15,690	2,004	3,998	4,583	14,162	2,664	5,343	4,552	**3,379**	22,670
- % of EU-15 aver.	26.7	24.3	69.2	8.8	17.6	20.2	62.5	11.8	23.6	20.1	**14.9**	100.0
NFCC												
- EUR / AWU	2,478	1,295	697	440	958	1,456	990	590	2,223	1,839	**899**	7,230
- % of EU-15 aver.	34.3	17.9	9.6	6.1	13.3	20.1	13.7	8.2	30.8	25.4	**12.4**	100.0
NVA-bp												
- EUR / AWU	3,571	4,205	14,993	1,564	3,040	3,128	13,172	2,074	3,119	2,714	**2,480**	15,440
- % of EU-15 aver.	23.1	27.2	97.1	10.1	19.7	20.3	85.3	13.4	20.2	17.6	**16.1**	100.0
Subsidies on p.												
- EUR / AWU	4,071	1,798	n.a.	835	237	1,294	1,612	502	1,281	1,701	**852**	4,481
- % of EU-15 aver.	90.9	40.1	n.a.	18.6	5.3	28.9	36.0	11.2	28.6	38.0	**19.0**	100.0
Taxes on prod.												
- EUR / AWU	1,032	81	n.a.	56	2	53	n.a.	154	n.a.	341	**173**	650
- % of EU-15 aver.	158.9	12.4	n.a.	8.7	0.4	8.1	n.a.	23.7	n.a.	52.5	**26.6**	100.0
NVA-fc												
- EUR / AWU	6,611	5,922	14,993	2,343	3,275	4,369	14,783	2,422	4,400	4,074	**3,159**	19,271
- % of EU-15 aver.	34.3	30.7	77.8	12.2	17.0	22.7	76.7	12.6	22.8	21.1	**16.4**	100.0
GFCF												
- EUR / AWU	2,834	4,285	n.a.	2,061	1,991	1,456	825	343	2,270	1,274	**880**	7,807
- % of EU-15 aver.	36.3	54.9	n.a.	26.4	25.5	18.6	10.6	4.4	29.1	16.3	**11.3**	100.0
NFCF												
- EUR / AWU	356	2,990	n.a.	1,621	1,032	0	-165	-247	46	-564	**-24**	576
- % of EU-15 aver.	61.8	518.8	n.a.	281.2	179.1	0.0	-28.7	-42.9	8.0	-97.9	**-4.2**	100.0

** Legend: GVA-bp = gross value added (basic prices); NFCC = net fixed capital consumption; NVA-bp = net value added (basic prices); Subsidies on p. = subsidies on production; Taxes on prod. = taxes on production; NVA-fc = net value added (factor cost); GFCF = gross fixed capital formation; NFCF = net fixed capital formation.*
Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.27. Indexes of main economic indicators of the agricultural sector in the NMS: values per work unit (EU-15 average of current year = 100)

Country	*Indicator**	*EU-15 average of current year = 100*					
		2000	*2001*	*2002*	*2003*	*2004*	*2005*
Czech Republic	Gross output / AWU	40.3	46.1	47.3	36.4	44.6	44.7
	Interm. consumpt./ AWU	55.5	62.0	67.6	51.7	58.4	61.0
	GVA-bp / AWU	23.6	28.8	26.7	21.1	30.7	26.7
Estonia	Gross output / AWU	12.6	15.0	15.2	22.0	23.4	26.7
	Interm. consumpt./ AWU	16.3	19.6	20.3	28.3	29.2	32.6
	GVA-bp / AWU	10.8	12.8	12.6	18.6	20.5	24.3
Cyprus	Gross output / AWU	56.8	62.3	62.6	54.8	51.1	55.3
	Interm. consumpt./ AWU	49.3	53.8	52.6	48.1	47.7	49.2
	GVA-bp / AWU	62.0	67.8	70.0	67.1	59.3	66.4
Latvia	Gross output / AWU	6.9	8.0	8.2	7.7	8.8	10.3
	Interm. consumpt./ AWU	8.2	9.5	10.5	10.9	11.5	13.3
	GVA-bp / AWU	6.7	7.4	7.2	6.8	8.1	8.8
Lithuania	Gross output / AWU	14.3	15.1	14.3	13.9	16.4	21.6
	Interm. consumpt./ AWU	18.5	20.9	19.4	18.1	20.8	25.8
	GVA-bp / AWU	10.0	9.3	8.9	9.5	12.3	17.6
Hungary	Gross output / AWU	16.4	19.4	20.1	19.9	23.7	24.2
	Interm. consumpt./ AWU	20.8	25.6	26.7	26.4	29.4	27.9
	GVA-bp / AWU	12.7	14.0	14.1	14.0	18.3	20.2
Malta	Gross output / AWU	62.0	66.4	67.3	61.1	56.7	61.1
	Interm. consumpt./ AWU	64.7	66.5	67.5	60.4	61.8	64.4
	GVA-bp / AWU	62.3	69.2	69.8	65.2	56.3	62.5
Poland	Gross output / AWU	11.5	13.1	12.9	11.8	14.0	13.8
	Interm. consumpt./ AWU	14.5	15.9	16.0	15.1	16.2	15.1
	GVA-bp / AWU	8.5	10.1	9.5	8.2	11.4	11.8
Slovenia	Gross output / AWU	22.2	20.6	22.4	21.7	24.9	25.0
	Interm. consumpt./ AWU	24.6	24.4	23.2	25.2	27.0	25.1
	GVA-bp / AWU	18.8	16.1	20.7	17.1	21.7	23.6
Slovakia	Gross output / AWU	21.2	24.9	25.3	27.1	34.6	34.0
	Interm. consumpt./ AWU	34.6	38.3	37.6	43.3	49.1	48.8
	GVA-bp / AWU	11.0	14.4	17.4	14.3	22.0	20.1
NMS	Gross output / AWU	14.5	16.4	16.7	15.5	18.3	18.2
	Interm. consumpt./ AWU	18.5	20.6	21.2	20.4	22.3	21.1
	GVA-bp / AWU	10.6	12.1	12.0	10.9	14.5	14.9
	Subsidies on prod. / AWU	9.4	7.8	8.1	8.1	26.9	18.9
	GFCF / AWU	7.6	9.7	10.2	10.8	13.4	11.2
	NFCF / AWU	-3.2	-1.6	-2.0	-0.9	-3.0	-0.3

** Legend: GVA-bp = gross value added (basic prices); GFCF = gross fixed capital formation; NFCF = net fixed capital formation.*

Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.28. Indexes of real variation in main economic indicators of the agricultural sector in the NMS; values per AWU at constant prices (year 2000 = 100)

Country	*Indicator**	*Variations at constant prices (year 2000 = 100)*					
		2000	*2001*	*2002*	*2003*	*2004*	*2005*
Czech Republic	Gross output/AWU	100.0	108.4	110.3	93.4	111.2	125.7
	Interm. consumpt./AWU	100.0	105.3	106.5	88.8	101.8	108.8
	GVA-bp/AWU	100.0	115.6	118.8	103.8	132.4	168.4
Estonia	Gross output/AWU	100.0	110.9	113.1	169.9	172.8	186.8
	Interm. consumpt./AWU	100.0	119.9	113.4	163.3	174.8	202.3
	GVA-bp/AWU	100.0	97.3	110.0	176.5	165.1	187.4
Lithuania	Gross output/AWU	100.0	103.5	104.3	112.7	128.0	143.6
	Interm. consumpt./AWU	100.0	113.4	101.7	97.2	110.3	123.4
	GVA-bp/AWU	100.0	85.4	109.0	141.0	160.7	180.8
Hungary	Gross output/AWU	100.0	116.0	108.0	111.0	145.3	143.3
	Interm. consumpt./AWU	100.0	110.3	109.8	110.5	116.7	113.5
	GVA-bp/AWU	100.0	125.3	102.1	109.2	195.1	196.7
Malta	Gross output/AWU	100.0	103.7	109.6	109.4	109.4	115.8
	Interm. consumpt./AWU	100.0	104.3	111.1	109.8	109.3	116.2
	GVA-bp/AWU	100.0	103.1	108.3	109.0	109.4	115.3
Poland	Gross output/AWU	100.0	103.8	116.0	121.9	142.6	127.9
	Interm. consumpt./AWU	100.0	99.5	111.6	117.4	126.3	111.1
	GVA-bp/AWU	100.0	110.9	123.3	129.5	173.8	160.3
Slovenia	Gross output/AWU	100.0	91.9	106.0	103.0	126.7	126.3
	Interm. consumpt./AWU	100.0	96.7	99.5	109.6	116.2	116.9
	GVA-bp/AWU	100.0	85.8	114.6	94.5	140.0	137.9
Slovakia	Gross output/AWU	100.0	113.1	120.4	128.8	163.1	158.9
	Interm. consumpt./AWU	100.0	114.0	114.8	133.3	149.9	147.1
	GVA-bp/AWU	100.0	110.1	133.8	116.3	197.3	189.1
NMS*	**Gross output/AWU**	**100.0**	**104.0**	**110.9**	**114.6**	**137.0**	**129.1**
	Interm. consumpt./AWU	**100.0**	**101.4**	**108.2**	**111.6**	**120.5**	**111.7**
	GVA-bp/AWU	**100.0**	**108.4**	**114.7**	**119.2**	**168.3**	**163.2**
EU-15	Gross output/AWU	100.0	99.8	103.7	103.5	110.7	108.8
	Interm. consumpt./AWU	100.0	102.0	103.6	104.9	107.2	112.0
	GVA-bp/AWU	100.0	97.6	103.6	102.0	114.0	108.4

** Legend: GVA-bp = gross value added (basic prices); data from Cyprus and Latvia are not included.*
Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.29. Foreign trade indicators of the agro-food sector* in the NMS (year 2005)

Country	*Agro-food trade as % of the total trade*		*Agro-food trade balance (mio EUR)*	*Agro-food trade balance as % of the total output of the agricultural sector*	*Average yearly variation in the total trade value*		*Average yearly variation in the total trade value of agro-food commodities*	
	Import	*Export*			****Pre-Accession (2002-03)*	****Post-Accession (2004-05)*	****Pre-Accession (2002-03)*	****Post-Accession (2004-05)*
Czech Republic	5.1%	3.8%	-729.96	-21.4%	7.1%	20.0%	7.5%	29.0%
Estonia	8.0%	6.6%	-253.11	-48.1%	7.3%	24.0%	4.7%	20.0%
Cyprus	11.3%	15.7%	-387.61	-62.3%	-2.7%	28.2%	1.8%	16.5%
Latvia	10.6%	11.2%	-279.89	-37.2%	13.6%	24.9%	7.4%	34.3%
Lithuania	7.6%	12.0%	191.71	11.9%	8.4%	27.5%	6.3%	33.1%
Hungary	4.0%	5.8%	776.02	12.7%	6.2%	14.8%	1.8%	17.3%
Malta	11.6%	3.5%	-271.64	-217.5%	-0.2%	-1.3%	2.3%	0.6%
Poland	5.8%	9.4%	1,992.65	13.2%	6.1%	21.2%	2.5%	35.3%
Slovenia	6.2%	3.2%	-519.46	-48.4%	4.2%	17.6%	1.7%	20.3%
Slovakia	5.5%	3.9%	-545.90	-32.2%	14.2%	19.1%	2.8%	41.9%
NMS	**5.7%**	**6.4%**	**-66.34****	**-0.2%****	**7.1%**	**19.2%**	**3.6%**	**28.6%**
EU-15	9.3%	9.1%	-9,883.80**	-3.5%**	-0.3%	8.6%	-2.1%	4.7%

**Including trade of agricultural products, live animals, processed food, beverages, and tobacco. **For the NMS aggregate, data refer to trade of NMS countries with non-NMS countries; for the EU-15 aggregate, data refer to trade of EU-15 countries with non-EU-15 countries. ***The total trade value is calculated as sum of import and export at current prices in EUR.*
Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.30. Normalised balance* of agro-food foreign trade in the NMS (years 2001-2005)

Country	*Pre-Accession*			*Post-Accession*		*Trends ****
	2001	*2002*	*2003*	*2004*	*2005*	
Czech Republic	-0.17	-0.21	-0.20	-0.19	-0.13	(+)
Estonia	-0.19	-0.22	-0.27	-0.25	-0.24	(=)
Cyprus	-0.54	-0.54	-0.51	-0.48	-0.51	(=)
Latvia	-0.41	-0.38	-0.39	-0.36	-0.23	(+)
Lithuania	-0.01	-0.02	0.03	0.04	0.09	(+)
Hungary	0.40	0.35	0.31	0.20	0.15	(-) (-)
Malta	-0.63	-0.47	-0.54	-0.63	-0.68	(-) (-)
Poland	-0.03	0.00	0.12	0.14	0.17	(+) (+)
Slovenia	-0.28	-0.26	-0.28	-0.47	-0.35	(-)
Slovakia	-0.33	-0.30	-0.23	-0.23	-0.21	(+)
NMS**	**-0.07**	**-0.08**	**-0.03**	**-0.04**	**0.00**	(+)
EU-15**	-0.06	-0.06	-0.07	-0.08	-0.08	(=)

**The normalised balance is the ratio between the trade balance and the total trade value: if the indicator equals 1 all foreign trade of the country consists in export (absolute specialisation in the concerned commodities); if it equals -1, all foreign trade of the country consists in import (absolute de-specialisation in the concerned commodities). **For the NMS aggregate, data refer to trade of NMS countries with non-NMS countries; for the EU-15 aggregate, data refer to trade of EU-15 countries with non-EU-15 countries. ***Legend: (+) improving, (-) worsening; (=) non significant changes.*
Sources: DEIAGRA elaboration from Eurostat Database.

Table 1.31. Pre-Accession and post-Accession dynamics and structure of agro-food foreign trade in the NMS

Country		*Yearly average variations in the agro-food foreign trade*		*Pre-Accession structure of the agro-food foreign trade by trading partner (average 2001-2003)*			*Post-Accession structure of the agro-food foreign trade by trading partner (average 2004-2005)*		
		2002-2003	*2004-2005*	*NMS*	*EU-15*	*Other countries*	*NMS*	*EU-15*	*Other countries*
Czech Republic	import	9.1%	24.4%	24.0%	50.3%	25.6%	26.7%	60.1%	13.2%
	export	5.2%	36.0%	43.8%	36.1%	20.1%	43.5%	41.3%	15.2%
Estonia	import	8.5%	18.3%	24.2%	54.3%	21.5%	29.4%	56.9%	13.7%
	export	-0.8%	22.8%	31.0%	32.6%	36.4%	32.0%	41.7%	26.3%
Cyprus	import	0.8%	16.5%	1.0%	57.1%	41.8%	3.1%	72.4%	24.5%
	Export	5.1%	16.4%	4.6%	65.9%	29.5%	4.5%	58.3%	37.2%
Latvia	Import	5.7%	23.4%	41.6%	39.9%	18.5%	44.8%	41.1%	14.2%
	export	7.7%	55.4%	30.3%	23.1%	46.6%	42.0%	24.2%	33.8%
Lithuania	import	4.7%	29.2%	22.6%	40.9%	36.4%	34.7%	42.4%	22.9%
	export	10.1%	39.0%	24.6%	34.3%	41.1%	27.3%	44.6%	28.2%
Hungary	import	9.4%	33.2%	15.3%	47.5%	37.2%	23.0%	60.7%	16.3%
	export	-1.5%	9.0%	14.2%	47.7%	38.1%	15.6%	52.6%	31.7%
Malta	import	-0.6%	5.2%	0.6%	75.7%	23.6%	1.9%	82.6%	15.5%
	export	14.9%	-14.7%	0.3%	13.4%	86.2%	0.6%	19.8%	79.6%
Poland	import	-4.7%	29.7%	10.1%	51.2%	38.8%	10.3%	64.3%	25.4%
	export	10.1%	39.7%	15.9%	48.7%	35.5%	16.5%	57.0%	26.4%
Slovenia	import	1.5%	24.0%	17.8%	52.3%	29.9%	15.2%	62.2%	22.6%
	export	2.0%	13.7%	2.5%	21.1%	76.4%	5.3%	41.2%	53.4%
Slovakia	import	-1.1%	40.8%	48.9%	34.0%	17.1%	58.0%	32.5%	9.4%
	export	10.5%	43.8%	64.9%	19.9%	15.2%	59.3%	28.8%	11.9%
NMS*	**import**	**2.0%**	**27.4%**	**19.4%**	**49.2%**	**31.4%**	**23.4%**	**57.9%**	**18.6%**
	export	**5.4%**	**29.7%**	**22.4%**	**42.0%**	**35.7%**	**24.3%**	**49.3%**	**26.5%**
EU-15**	import	2.1%	5.1%	1.9%	71.3%	26.8%	2.8%	71.2%	26.0%
	export	2.2%	4.2%	2.5%	74.4%	23.1%	3.4%	74.8%	21.8%

Sources: DEIAGRA elaboration from Eurostat Database.

2.1. Subsistence agriculture

The term *subsistence agriculture* is often used synonymously with such concepts as traditional, small scale, peasant, low income, resource poor, low-input or low technology farming. Many of these concepts are also used in non-economic disciplines with very different meanings. Many authors define subsistence agriculture on the basis of the production share sold on the market. On the other hand, other authors take in consideration other aspects such as risk perception, social and security role, physical and/or economic size (small holding surface, low income), lower use of technology. In order to describe the trends in NMS subsistence agriculture several definitions among the previous will be used, using indicators such as farm size, holdings' number, cultivated area, economic size (economic size unit, ESU).

Subsistence agriculture has a long heritage in Eastern Europe, both as a mean of supplementing income, and as a social tradition. According to the majority of analysts, communist system collapse would have lead these subsistence households to expand their operation to became family farmers. But, after massive privatisation reforms in the agricultural sectors during the early 1990s, the number of subsistence farms did not decreased significantly.

According to IAMO estimation ([6]) summarised in Table, the number of subsistence farms were quite relevant in most of the NMS during that period, decreasing in almost all the countries up to 2000.

Table 1.32. Trends in Subsistence Agriculture in the NMS during the '90

Country	*1989/1990*			*1994/1995*			*1999/2000*		
	% of land	*Nr. farms*	*Average size (ha)*	*% of land*	*Nr. farms*	*Average size (ha)*	*% of land*	*Nr. farms*	*Average size (ha)*
Estonia	:	:	:	:	:	:	18	130,000	0.25
Latvia	2.5	250,172	0.4	:	:	:	37	173,280	4.9
Lithuania	8.8	413,138	0.55	23.4	378,412	2.2		342700	2.2
Hungary	6	1,400,000	0.25	16.8	978,101	0.2	:	:	:
Poland	3.6	:	:	:	:	:	6.5	1,019,000	1.3
Slovenia	:	:	:	:	:	:	1.2	8,448	< 1

Source: DEIAGRA elaboration on IAMO data.

In Malta and Poland. subsistence farms are more important in area close to urban regions (Table 1.33), in the other countries, on the opposite, subsistence farms are more or less evenly distributed among those areas, with a slight trend to favour rural and intermediate regions.

Table 1.33. Importance of subsistence farming in NMS (% of farms < 1 ESU, district level, 2003)

Country	*PR- Regions**	*I- Regions**	*PU- Regions**
Czech Republic	37.6	46.4	16.2
Estonia	55.3	61.9	56.8
Cyprus	-	37.1	-
Latvia	58.5	58.2	-
Lithuania	65.3	70.4	-
Hungary	76.8	84.8	72
Malta	-	-	33.6
Poland	45.3	56.8	74.7
Slovenia	20	21.7	-
Slovakia	84.3	82	85.5
NMS	**55.6**	**61.5**	**69.7**

***PR**: Predominantly Rural region, if more than 50% of the population of the region is living in rural communes (with less than 150 inhabitants / km^2). **IR**: Intermediate Region, if 15% to 50% of the population of the region is living in rural local units. **PU**: Predominantly Urban region, if less than 15% of the population of the region is living in rural local units.*
Source: European Commission, 2006 ([7])

([6]) Joachim von Braun, Daniela Lohlein, *Policy Options to Overcome Subsitence Agriculture in the laboration on IAMOCEECs*, in *Subsistence Agriculture in Central and Eastern Europe: How to Break the Vicious Circle ?*, edited by Steffen Abele and Klaus Frohberg, IAMO – Institut fur Agrarentwicklung in Mittel-und Osteuropa

([7]) European Commission Directorate-General for Agriculture and Rural Development, Rural Development in the European Union – Statistical and Economic Information – Report 2006, August 2006.

Assuming that most of subsistence farms have less than 2 ha of Utilised Agricultural Area (UAA) and less than 1 Economic Size Unit (ESU) of economic size (1 ESU is equal to farm gross margin of 1,200 € per year), a further estimation to update the of Table and Table could be based on official statistical surveys of years 2003 and 2005 (see Table , where data about EU-15 are reported as a benchmark reference). In the NMS, the share of holdings under the physical limit of 2 ha is in 48.4% (average value 2003-2005) and increased by 3.0% in 2005. According to the economic criterion, the weight of those holdings is around 59%, and increased by 1.2% in 2005. According to both criteria, but specially according to ESU, the difference between NMS and EU15 is considerable.([8])

Taking EU-15 data as a reference, subsistence farming results particularly relevant in Malta, Hungary, Slovakia and Poland, while in the Baltic States and in Slovenia is lower or similar to the EU-15. The situation changes when the economic criterion is taken into account. In that case almost all NMS (except Slovenia) are above EU15 values; furthermore, the ranking among NMS changes a little (for instance, holdings under 1 ESU are more important in Baltic Countries and Slovakia, while they are less important in Poland and Slovenia). From 2003 up to 2005 the share of holdings with less than 2 ha has increased in Poland (6%) and Malta (around 2%), Hungary, Slovenia and Slovakia, while has decreased in the other countries. The trend is similar for the holdings with less than 1 ESU (with the only exception of Latvia and Slovakia)

Table 1.34. Evaluation of subsistence agriculture (2003-2005)

Country	*% of holdings (average 2003-2005)*		*% variation (2003-2005)*	
	< 2 ha	*< 1 ESU*	*< 2 ha*	*< 1 ESU*
Czech Rep.	35.4	40.0	- 3.7	- 6.6
Estonia	18.9	56.1	- 3.0	- 8.8
Cyprus*	70.2	37.1	-	-
Latvia	23.5	61.7	- 1.8	6.7
Lithuania	11.5	58.2	- 2.1	- 18.0
Hungary	73.8	78.7	1.1	- 0.9
Malta	86.3	34.3	2.3	1.2
Poland	45.8	53.8	5.9	4.9
Slovenia	22.8	20.7	0.9	0.7
Slovakia	78.5	82.1	0.4	- 1.8
NMS	**48.4**	**59.1**	**3.0**	**1.2**
UE15*	35.6	20.3	-1.4	0.3

** Cyprus data non available for 2005; UE-15 data refer to 2000 and 2003.*
Source: DEIAGRA elaboration on EUROSTAT data.

([8]) It's worth noting that in the EU15 during 2000-2003 the weight of holdings with less than 2 ha has decreased while the number of holding with less than 1 ESU has increased.

1.3. Changes in wholesale and retail system

1.3.1. Slovenia

In Slovenia, the role of the gross distribution is increasing and attracts national and foreign investments. In 2005, big retailers as Eurospin, LDL, Hartlauer, H&M, Mark & Spencer, Douglas and Limoni have opened their sale points in the country. Retail system structure is characterised by an important concentration process, which allows scale economies, purchases centralisation, standardisation, workers' specialisation, scale economies in advertising (costs distribution among different sale points). The retail system in Slovenia is characterised by big national groups and foreign retailers. National groups are often importers and suppliers of other wholesaler and retailers. Wholesalers' importance is declining in the retailers' supplying (now supported by the most important producers, by own sale points of sale, franchising system, etc.). The first groups (Mercator, Spar, Tuš and Leclerc) accounts for about 80% of national trade market (see Table 1.35.). Foreign retailers penetration has increased in the last years due to Spar, Hervis, Kastner&Oehler, Bauhaus, Baumax, OBI, Rutar, Drogerie Markt and Müller, E.Leclerc). The most important group is Mercator (which accounts for a 42% market share).

Table 1.34. The firsoperators in the retail system in Slovenia: turnover 2003 (mio €)

Poslovni sistem Mercador D.D	706
Engrotuš D.O.O	274
SPAE Slovenija D.O.O	208
Živila Kranj D.D (Group Mercator)	152
VELE D.D (Group Engrotuš)	143
ERA D.D	137
Rudnidis Trgovina D.O.O (E.Leclerc)	46
NAMA D.D	31
Maxi D.D (Group Mercator)	30
Preskrba D.D.	25

Source: ICE, January 2005

1.3.2. Poland

In Poland, big stores' market share is increasing. The number of stores with a surface higher than 400 m^2 augments to the detriment of small and specialised shops. According to ICE estimates, in 2005 shopping centres' area would have increased of about 1,7 mln m^2. Modern shopping centres development in Poland is mainly explained by considerable investments made by foreign firms operating in the country. Presently all major European wholesale distribution groups are at work. Modern distribution channels share (hypermarkets, supermarkets and discount stores) in retail sales has been increasing quickly from 18% in 1998, to 32% in 2002 (Wilkin, Juchniewicz and Milczarek, 2004). Development strategies are differentiated: some groups aim at creating new stores in the most important cities (Leclerc, Rewe, Ahold & Allkauf, Metro and Auchan), whereas other groups pay more attention to decentralised areas (Tesco, Julius Meinl, Jeronimo Martins). Evenly distributed across the country (although few of them are located in the south-eastern part of the country), shopping centres are mostly located in

cities' outskirts. The increasing competition and the role of the multinational firms mainly explain quality improvement of services in shopping centres. Another interesting phenomenon is the creation of purchase stations by the local distributors, in order to lower supply costs. The Metro group, a food retailing company controlling the Real outlets, is the main operator. In 2003, revenues of Metro consortium in Poland exceeded 2.5 billion €.
Ahold Polska is another major operator controlled by Royal Ahold, a dutch company with 191 outlets. Albert supermarkets are the core of this group, with 166 outlets. The british group Tesco controls 69 large shopping centres and is presently the third major operator, with an annual turnover of nearly one billion €. French investments are also rather significant in the retailing sector: Carrefour and its subsidiaries, Champion and Globi, owns 89 large shopping centres. Generally, food sales share for large-scale retailers in Poland is bigger than in the EU-15.
Although the market share of traditional retailers has been reduced, they are still quite important in Poland, especially in food products sales. Therefore, concentration in food retailing is still far from the levels reached in the majority of the EU-15 countries.
Over a dozen wholesale markets, established in the form of joint stock companies, are presently operating in Poland. The main shareholders of these companies are the State Treasury, the Agency for Restructuring and Modernisation of Agriculture, traders, agricultural producer groups and other bodies.

1.3.3. Slovakia

The retail system in Slovakia is characterised by the presence of multinational firms. In 2004, shops and shopping centres surface has increased and the number of hypermarkets has doubles (about 90 in 2004). The most important increase has been registered by TESCO, followed by Billa, Kaufland and Ahold Retail (see Table). The creation of new sale points is mainly explained by strong investments, made by multinational firms. Moreover, some sale points have been created (Shopping Palace by Soravia Group). The logistical centres play an important role (owned by LIDL, Kaufland, Billa and Tesco). As regard specifically agro-food trade, Tesco is the first retailer in terms of turnover, followed by Metro Cash & Carry Slovakia, Billa, Kaufland, M-Market, Ahold Retail.

Table 1.35. The first operators in the retail system in Slovakia: turnover 2004 (mln €)

Tesco Stores SR a.s	291
Metro Cash & Carry Slovakia s.r.o	271
Billa s.r.o	204
Kaufland SK v.o.s	140
M-Market a.s	113
Ahold Retail Slovakia k.s	106
Labas	78
COOP Jednota Bratislava	61
COOP Jednota Nove Zamky	59
Prima Zdroj Holding a.s	57

Source: ICE, February 2006

1.3.4. Hungary

An increase in the number of big shopping centres has been registered in Hungary, with 80 new centres created in the last 7-8 years. Actually, about 17% of Fast Market Consumer Goods is realised by hypermarkets and supermarkets. The most important big retailer are Auchan Magyarország Kft (8 hypermarkets), CBA Kereskedelmi Kft (2.500 points of sale), Co-op Hungary Rt (2.400 points of sale), CORA, DM-Drogerie Markt Kft, Interfruct, Metro Holding Magyarország Kft, Penny Market, SPAR.
Food distribution sector is more and more dominated by large-scale retailers and has become highly internationalised. Large-scale retailers' sale networks are mainly supplied by local producers and by foreign food-processing firms which have set up their own branches in the Country. Although to a lesser extent, large-scale retailers also buy from importers, distributors, and local wholesalers.

1.3.5. The Czech Republic

The food distribution sector in Czech Republic is now organised in a very similar way to Europe. Major 10 operators are multinational companies. Among local companies, co-operatives play an important role. Small-scale retailers have been constantly losing their market share due to competition from large-scale retailers. Specialised operators play a significant role in fresh and processed meat sector. Important wholesaler, retailers and cooperatives groups are EMD Markant, COOP Centrum and Coop Moravia.

Table 1.36. The first operators in the retail system in Czech Republic(turnover 2001, mln €)

Makro	939
Ahold	869
Kaufland	616
Rewe Group	599
Tesco Stores	514
Tangelmann Group	452
Globus	449
Delvita	335
Carrefour	255
Julius Meinl	214

Source: ICE, Yearbook of Czech and Slovak Trade, 2002

2. Annex to Chapter 2

2.1. Pre-Accession policy background

In the CEEC ([9]), post-socialist reforms in the agro-food sector had wide economic and social implications involving a very assorted set of interventions. In mid 1990s, market liberalisation and land de-collectivisation were the most advanced reform areas, nevertheless, in most countries competition remained scarce in agricultural markets. Land privatisation process was constrained, on the one hand, by slow restructuring of big state farms and, on the other hand, by deficient titling systems, which hindered investments and effective functioning of land market.

In general agricultural reform process resulted much more difficult than expected. In fact, especially in the early phase which "was more ideologically driven by bias against the inherited structures, the reform was often an exercise of dismantling rather than changing and constructing on the basis of a comprehensive, consistent and carefully contemplated agrarian strategy" (Csaki, 1997). The most evident consequence of this mix of market liberalisation and structural disbanding was a severe and lasting decline of agricultural output, chiefly in livestock sector. In many CEEC, agricultural production has not yet recovered pre-transition levels.

From the second half of the 1990s, achievement of WTO membership ([10]) and Accession perspective contributed to reinforce the agricultural policy set-up in many CEEC, which began to harmonise national agricultural policies with the Common Agricultural Policy (CAP). OECD indicators of farmers' policy support level grew in the majority of CEEC, although the gap with the EU in general continued to be important. Only in Slovenia, OECD indicators showed the achievement of agricultural support levels higher than in the EU ([11]).

Almost all CEEC implemented Direct Payments for farmers and market intervention measures, several countries introduced quota systems in the sugar sector (Czech Republic, Latvia, Lithuania, Poland and Slovakia) and in the dairy sector (Czech Republic, Hungary and Slovakia), and there was a general tendency to adopt WTO-Green-Box-type measures for domestic agricultural support (NIAE, 2003, p. 22).

As regards protection of domestic markets, except for Romania, Poland and Slovenia, the CEEC final bound tariffs of food and agricultural products agreed in the WTO were considerably lower than those accorded to the EU ([12]). Moreover, most of imports entered in these countries duty-

([9]) For this study purposes the acronym CEEC (Central and Eastern Europe Countries) refers to the group of 10 States including: Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia.

([10])CEEC joined the WTO as follows: Czech Republic, Hungary, Poland, Romania, Slovakia, and Slovenia in 1995, Bulgaria in 1996, Estonia and Latvia in 1999, Lithuania in 2001.

([11])For example, the producer Nominal Assistance Coefficient (producer NAC) expresses the ratio between total farm receipts (the value of farm production at national prices plus payments to producers) and farm production at world prices (i.e. without any price support nor payments to farmers). When producer NAC equals to 1, total farm receipts are supposed to be as they would be if entirely obtained from selling farm production on a free market, without application of state minimum guaranteed prices nor subventions. If producer NAC is 1.50, it means that total farm receipts are 50% higher than they would result in case they were only obtained from a free market. The three-year average producer NAC of 10 CEEC grew from 1.17 in the 1993-1995 period, up to 1.23 during 1999-2001. In the EU the three year average varied from 1.58 in 1993-1995, to 1.54 in 1999-2001. In Slovenia the producer NAC surmounted the EU values, by increasing from 1.43 in the 1993-1995 period, to 1.74 during 1999-2001.

([12])WTO agreements did not allow Slovenia and the three Baltic CEEC to subsidise agricultural export, even if Slovenia made large use of measures supporting agricultural and processed products export during the 1990s.

free or with preferential tariffs thanks to the various trade agreements stipulated either among the CEEC or between the CEEC and the EU ([13]).

2.2. The impact of the SAPARD

In the followings pages we analyse the main impacts of the SAPARD concerning structural change, modernisation, and technical improvement. Following the review of available documents on SAPARD implementation, we examined the impacts of the following four measures:

- investments in agricultural holdings;
- improving the processing and marketing of agricultural and fishery products;
- land improvement and re-parcelling;
- rural infrastructure.

It was possible to analyse 6 out of the 8 NMS eligible for SAPARD funds. Desk research has been thus carried out analysing the SAPARD Review (SAPARD Review in Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Poland and Romania, European Institute Foundation, Bulgaria, 2005), the mid-term evaluation reports and, when available, the latest –2005- annual SAPARD Programme implementation reports. The "Guidelines for the Evaluation of Rural Development Programme supported by SAPARD" (2006) prepared by the Commission was taken as a support tool.

According to SAPARD Annual Report (edited by the Commission in 2000) 'Investments in agricultural holdings' measure, was programmed to absorb € 797 millions, representing 22% of total Community contribution for all the 10 CEE Countries. The importance of the budget earmarked for this measure reflected the need for agriculture modernisation and adaptation to Community requirements.

The measure 'Improving the processing and marketing of agricultural and fishery products' was included in all 8 SAPARD programmes. In global financial terms it was the most important measure, amounting to 954 millions € representing, 26% of the total Community contribution. It was the largest measure for the Czech Republic (25%), Latvia (26%), Poland (38%) and Slovenia (40%). For the remaining countries, it was at the second place: Estonia (18%), Hungary (21%), Lithuania (21%), and the Slovak Republic (26%). These data show the importance placed on the processing and marketing measure as a contribution to upgrade, adapt, rebuild or create agro-food industries in NMS. The measure assisted the countries in

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Bulgaria, Czech Republic, Hungary, Poland, Romania and Slovakia had negotiated the amount of agricultural export subsidies in the WTO, but normally national expenditure for this kind of support were maintained substantially below the agreed commitments. Only Hungary (which has the highest rates of agricultural export among the CEEC), had settled the maximum admitted amount for export subsidies in national currency. Then it was not able to comply with WTO commitments after the progressive depreciation of the Hungarian Forint (HUF) against the US Dollar started in 1995. In 1997 this country was allowed to postpone the implementation of original WTO schedule for export subventions until 2002 (NIAE, 2003, pp. 22-23).

([13])The most important trade agreements stipulated in the area were: the Baltic Free Trade Agreement (BFTA) signed in 1994 between Estonia, Latvia and Lithuania and extended to food and agricultural products in 1996; the Central European Free Trade Agreement (CEFTA) signed in 1992 by the Visegrad Group (Czechoslovakia, Hungary and Poland) and later joined by Slovenia (1996), Romania (1997), Bulgaria (1998), Croatia (2002), and the Republic of Macedonia (2006); the Custom Union between the Czech Republic and Slovakia (1993); the Europe Agreements signed with the EU by each CEEC prior to the Accession.

restructuring agriculture, improving product quality (complying with Community standards) and competing more effectively at Community level.

Three countries (Czech Republic, Latvia and the Slovak Republic) opted for the measure 'Land improvement and re-parcelling', which globally accounted for € 46 millions (only 1% of the total Community contribution). Land re-parcelling played a very significant role in the Czech SAPARD Programme, where 20% of total Community contribution was allocated, and was of lesser importance in the Slovak programme (10% of the total Community contribution). In the countries concerned the main challenges have been plots fragmentation, the high number of co-owner shares, the incomplete land register and the physical inaccessibility of some plots. This measure was supposed to contribute establishing a better settlement of land, thus increasing farms efficiency through rational land management. Eligible investments included: the preparation of necessary documentation; preparation and implementation of land use projects (such as marking out the division plan, surveys and earthworks) and the building of access roads.

2.2.1. Poland

Restructuring of processing and marketing of animal products was the most popular within the measure 'Improving the processing and marketing of food and fishery products'. Applicants were less interested in sub-measures concerning processing of fishery products ([14]).

The measure 'Investments in agricultural holdings' (linked with agricultural production diversification) enjoyed the greatest popularity. Projects concerned with the restructuring of milk production enjoyed special interest among farmers.
Within the measure “Development of rural infrastructure” the greatest popularity was enjoyed by projects oriented towards building local roads, water supply, and wastewater disposal in rural areas.

SAPARD Review and SAPARD mid-term evaluation show that the programme proved to be the most beneficial for big enterprises and big agricultural holdings. The Program practically did not include sub-measures to support small and medium farms via small grants system. As a result the SAPARD Programme increased largest Polish farms and holdings competitiveness, but did not affect small holdings consolidation and contributed to Polish agriculture restructuring only to a limited extent.

The Polish SAPARD Review indicates that farmers and agricultural establishments participating in the programme benefited of an income increase of about 20%. However, no data was gathered that would point at an unemployment decrease resulting from the programme. This can be explained by late commencement of the Measure “Diversification of economic activities in rural areas” and by the financial limitation initially earmarked for this measure. Indices of safety and work hygiene increased significantly. However, no considerable animal welfare improvement was achieved.
Projects directed at increasing groundwater availability and management were not given priority. Focus on assistance to young farmers was insufficient. In the majority of the cases projects were directed at the improvement of production effectiveness (around 60%).

([14])Grosse, T., *National Review of Sapard Pre-accession Assistance Impact on National Agriculture and Rural Development in Poland*, in 'Sapard Review in Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Poland and Romania', European Institute Foundation, Bulgaria, 2005.

According to the SAPARD Review it is difficult to evaluate exhaustively the Programmes effects on rural development. Implementation delays resulted in emphasising organisational functions, related with programme implementation and its promotion among potential beneficiaries, instead of focusing on the quality and spending patterns.
Farmers, agricultural entrepreneurs and local institutions gave the SAPARD Programme in Poland a great interest. The Programme brought the most significant advantages in adjusting quality and sanitary norms to EU requirements.

2.2.2. Czech Republic

The Mid-Term Evaluation Report of the Czech SAPARD Programme finds that investments in agricultural holdings would not have been realised without SAPARD support; investments which could have been implemented were quite marginal. Supported investments have contributed to income increase for primary producers and have significantly improved farm products quality. On the other hand it must been mentioned that quality improvement started from a very low quality level, so that marginal effect is relatively high ([15]).

Working condition improvement has also been relevant. In addition animal welfare has been significantly improved at farm level.

Fruits and vegetables and livestock farming by-products storage capacity has been significantly improved, in compliance with EU standards.

The 'Processing and marketing' measure has resulted in positive effects, especially for new products, such as more efficient use of production factors and processing procedures, with good result on production cost.

Both quality products and competitiveness have been improved significantly due to the SAPARD support. In some cases job opportunity has been created as well. A significant positive effect was identified in relation to health conditions, while weaker results concern the compliance with EU animal welfare standards. The environmental effect of the Programme is less significant, unless for hygienic and veterinary norms.
The supported activities have certainly increased competitiveness. Half the beneficiaries have no exports currently, but export development and increased market share on national market are likely Programme outcomes in the mid term .

The effectiveness of the measure 'Improving the structures for quality control, for the quality of foodstuffs and for consumer protection' has been valued as adequate for the sub-measure concerning HACCP (42% red meat, 100 % dairy). On the other hand, SEUROP implementation resulted less satisfactory in relation to expectations. This is due partly to external factors, partly a non-optimal timing concerning Programme launching especially for this measure. Globally, products quality and consumer protection have increased considerably. 3,000 employees have been trained in HACCP, while fewer (50) have participated in training related to SEUROP. HACCP has been perceived as a useful mean to business development

([15])*Mid term evaluation of SAPARD programme in the Czech Republic*, Ministry of Agriculture of the Czech Republic, Prague, 2004.

New rules and procedures implementation and staff training is expected to lead to a better market position due to product differentiation.
The Mid-Term Report concludes that SEUROP and HACCP implementation positively affects competitiveness. The positive effects are the relevant rate of EU standard compliance (64 %) the considerable increase of product quality, and consumer protection improvement.
Thanks to the implementation of 'Land improvement and re-parcelling' measure beneficiaries' income is expected to increase, due to higher asset value and to more rational use of agricultural land.

Re-parcelling has been valued very sustainable. Clearly defined property rights will ensure efficient resources use, also including environmental concerns. Land renting and land market transparency will increase, hereby ensuring that positive and negative externalities are reflected in land price and land revenue. Income increase is actually reflected in increasing land price in the regions where the measure has been applied.

'Renovation and development of villages and rural infrastructure' measure has contributed to diversified and sustainable rural economy, which is shown by rural attractiveness for individuals. Activities supported under this measure resulted in safeguarding 750 rural jobs (direct creation of 408 jobs and indirect creation of 330 jobs). Approximately 50% of the jobs are for women, which is a quite satisfactory result. The most important effects from the measure have been identified in:

- contribution to a more diverse and sustainable rural economy,
- increased attractiveness of rural areas for rural individuals,
- general attractiveness of the rural areas, however to a slightly lower degree,
- meeting rural areas needs and benefiting rural dwellers,
- preservation of rural heritage,
- increased competitiveness of rural areas, but not directly affected by the measure.

2.2.3 Estonia

12,2 millions kroons were allocated to investments in agricultural holdings. Under this measure 14 projects were implemented in 2005 , including four projects for young farmers. Payment in 2005 were allocated as follows: 51% to livestock buildings, 31% to plant production projects, 15% to milk production, 3% to plant protection and seed growing projects. The share of high-grade milk produced by the beneficiaries in 2005 has decreased compared to 2004. The number of animal places meeting the EU animal protection requirements has increased from 68,8% to 89,8%. Tractors make up 4,6%, combine harvesters 26,7% and other agricultural machinery 12,8% of the agricultural machinery purchased thanks to SAPARD support (data based on sample farms) ([16]).
In 2005, 25,8 millions kroons altogether were paid under the measure 'Improving the processing and marketing of agricultural and fishery products', out of which 19,7 millions kroons (76,4%) were paid to dairy industries, 1,3 millions kroons (5%) to meat plants, 4,6 millions kroons (17,8%) to fish processing industries and 200 thousand kroons (0,8%) to support project preparatory work. In 2005, most of the financial resources were used for purchasing of milk processing equipment (40,3%), milk processing buildings (36%) and fish processing buildings (8,9%).

([16]) *Sapard Annual Report 2005*, Ministry of Agriculture of the Republic of Estonia, Tallinn, 2006.

1,2 millions kroons supported projects related to 'Renovation and development of villages and the rural infrastructure', of which 35% was allocated for access roads construction and reconstruction, 33% for water supply and sewage renewal and 27% for electricity supply systems.
In drawing up the Rural Development Plan, this measure was considered a priority which is worth the allocation of 40% the support. By 2005, 29% of the whole amount was allocated.

2.2.4. Latvia

Investments in agricultural holdings translated into a production cost decrease, due to the introduction of modern and energy saving technologies. These activities have increased agricultural product value and production efficiency by promoting establishment of rational farming structures, reducing environment pollution from livestock barns, improving the supply of domestic raw materials, enhancing processing industry capacity and quality of products ([17]).
As at january 2006, 827 projects were approved, and 800 were implemented. The total eligible expenditure of implemented projects amounts to 53 millions LVL. The majority of eligible expenditure among implemented projects (49.1% or LVL 26 millions) has been allocated to grain-farming.

The major share of investment (93% of the total specified expenditure) has been channelled to technical equipment modernisation. This distribution is justified by the need of rehabilitating farm machinery. This option has been now limited due to insufficient funding availability.
Activities under the sub-measure 'Improving the processing and marketing of agricultural and fishery products' have promoted of processing industry restructuring and concentration, as well as industrial productivity. Products value has increased due to the compliance with EU standards.

A relevant number of processing plants meeting EU standards have been established to reach enhanced hygiene standards, satisfactory quality levels, and to monitoring animal welfare and environmental impact. The major share of financing (34 % or 18.48 LVL millions of the total eligible programming expenditure) has been channelled to meat industry. 27.1 millions LVL (50.5 % of the total eligible programming expenditure) have been channelled to “Purchasing of processing equipment and technologies, introduction and further development of new products, and marketing development.

Funding of 'Renovation and development of villages and the rural infrastructure' has provided improved access roads to farms and other rural establishments, improved water supply of rural enterprises, establishment of communication centres and construction of power supply lines. By the beginning of 2006, 6 projects have been implemented under the “Electrification of rural households” measure, resulting in the construction of 25 km of power supply lines.

As at January 1, 2006 150 projects were approved under the programming and 141 projects have been implemented. The total eligible expenditure of implemented projects amounts to 7.66 millions LVL. The largest number of projects (92 projects for a total eligible expenditure of 6.51 millions LVL) has been approved under road construction.

([17]) *Annual Report of SAPARD Program of Latvia*, Ministry of Agriculture of the Republic of Latvia, Riga, 2005.

2.2.5. Hungary

The main beneficiaries of the measure 'Investments in agricultural holdings' were economic organisations and private farmers. However, while 56% of the applications were submitted by private farmers, they only received 26.6% of payments. At the same time, applications submitted by economic organisations with legal entity, (which can afford large value investments), absorbed almost 70% of the public contribution. The greater interest was for machines purchasing, determined by the need to substitute run-down, obsolete machine stock and by the relatively short payback period. 1,173 applications received 14.2 billions HUF. The number of projects approved under the measure were 1,471, 91.3% of which had been accomplished by the end of 2005. 84% of accomplished projects were for machine purchasing, which resulted in 435,000 kW power machine output, almost threefold than the planned output. On the other hand , only 64.4% of planned cattle-keeping places (that is 88,173 units) were established . The number of pig-keeping places (456,251) exceeds the planned number (358,700) by approximately 27%. The number of poultry keeping places were around 2,3 millions. Among other agricultural facilities, accomplished investments exceeded by 25 thousand tons the planned cereal capacity storage (152 thousand tons) ([18]).

Table 2.1. Investments in agricultural holdings, Hungary

Type of investment		Number of projects (pcs)		Reference unit		Amount committed by the SAPARD Agency (billion HUF)	National contribution paid to beneficiaries* (billion HUF)
		Approved	Accom-plished	Unit	Quantity		
Purchase of machinery		1173	1127	1000 kW	435	14,2	12,9
Building development		298	218	-	-	10,3	7,2
of which	Cattle	65	44	keeping places	88173	2,1	1,5
	Pig	56	40	keeping places	456251	2,6	1,7
	Poultry	62	42	keeping places	2296894	2,2	1,4
	Other farm buildings	115	92	1000 ton capacity	177	3,2	2,5
Total		**1471**	**1344**	**-**	**-**	**24,5**	**20,2**

** It does not include only the payments for accomplished projects.*
Source: Hungary's 2005 Annual Report on the Implementation of the SAPARD Programme, Ministry of Agriculture and Rural Development, Budapest, 2006.

Approximately 74% of approved projects under the measure 'Processing and marketing of agricultural and fishery products' has been accomplished by January 2006. The largest number of projects aimed at introducing new technology (142). In the case of waste management the capacity was 1,620 m^3 safely disposed wastes; in the case of waste water management it was 671,059 m^3 cleaned water. The number of new technologies to be introduced (194 pcs) is 2.5 times higher than the number planned (80 pcs). The planned number of farms which comply

([18])*Hungary's 2005 Annual Report on the Implementation of the SAPARD Programme*, Ministry of Agriculture and Rural Development, Budapest, 2006.

with Community regulations on food safety and hygiene was 320, out of which the establishment of 72 farms i.e. 23% of the planned capacity can be launched.

More than 3/4 of the projects approved under the measure 'Development of rural infrastructure' have been accomplished by January 2006. The largest number of projects aimed at improving agricultural road network. The length of agricultural and access roads to be established/reconstructed according to projects (522 km) is 2.3 times larger than the original target. As regards both approved and accomplished projects, those related to energy supply improvement rank second. The number of enterprises involved in energy supply (83 pcs) is only 44% the original target. Nevertheless, the majority has already been finished successfully. Out of 26 projects launched for the improvement of local markets only 4 have not been accomplished by the beginning of 2006. Most of the projects (85%) aimed at information and communication systems development has been successfully finished. However, it must be underlined that the number of projects aimed at the establishment of IT hubs (64 pcs) is hardly more than one tenth of the target (520).

Table 2.2. Processing and marketing of agricultural and fisheries products (support amounts*)*

Target	Number of projects (pcs)		Reference unit		Amount committed by the SAPARD Agency (billion HUF)	National contribution paid to beneficiaries* (billion HUF)
			Unit	Capacity		
	Approved	Accomplished				
Compliance with EU standards in the field of: Hygiene	72	56	pcs	72	3,2	2,6
Environmental protection	7	5	-	-	0,38	0,2
Waste management	2	2	m^3	1620	0,051	0,051
Waste water management	13	6	m^3	671059	0,7	0,3
Animal protection	2	2			0,027	0,024
Introduction of new technologies	194	142	pcs	194	11,9	8,2
Introduction of new products	16	14	pcs	2276914	1,07	0,5
Improvement of packaging and classification	21	15	pcs	21	1,03	0,8
Total	**327**	**242**	**-**	**-**	**18,35**	**12,6**

** It does not include only the payments for accomplished projects.*
Source: Hungary's 2005 Annual Report on the Implementation of the SAPARD Programme, Ministry of Agriculture and Rural Development, Budapest, 2006.

Table 2.3. Development of rural infrastructure in Hungary

Activities		Number of projects (pcs)		Reference unit		Amount committed by the SAPARD Agency (billion HUF)	National contribution paid to beneficiaries* (billion HUF)
		Approved	Accom-plished	Unit	Quantity		
Local technical infrastructure		459	352			**13,6**	**9,37**
of which	Development of agricultural roads	303	249	km	522	9,64	7,39
	Development of energy supply	83	70	pcs[1]	83	1,32	1,06
	Local, alternative sewage treatment	47	11	persons[2]	n.a.	2,48	0,78
	Construction and development of local markets and buying up facilities	26	22	pcs	26	0,15	0,12
Development of information and communication systems		124	105			**0,56**	**0,46**
of which	Establishment of IT hubs	64	59	pcs	64	0,3	0,26
	Telehouses, telepost networks, advisory systems	60	46	pcs	60	0,25	0,19
Total		**583**	**457**			**14,16**	**9,83**

(1) Number of enterprises affected by energy supply
(2) Number of settlements with sewage treatment plant
** It does not include only the payments for accomplished projects.*
Source: Hungary's 2005 Annual Report on the Implementation of the SAPARD Programme, Ministry of Agriculture and Rural Development, Budapest, 2006.

2.2.6. Slovenia

Farming efficiency has been improved in a relatively small number of agricultural holdings due to the measure 'Investment in agricultural holdings'. Production and processing modernisation of agricultural holdings has lead to income increase per employed and to working conditions improvement. Investments also contributed to environmental pollution reduction. Investments by industry are listed in Table 2.4.([19]).

Due to 'Rural infrastructure' measure basic living conditions have been improved (i.e. improved drinking water supply to rural households, in compliance with quality standards). The construction of thematic trails has secured better access to excursion sites in rural areas. The greater number of tourist visits has allowed the development of additional and supplementary activities, and thus higher incomes for farms. In any case, due to limited funding compared to the extent of the problem, the impact has been rather limited.
In the field of water infrastructure, 34 applications were approved which include total construction or improvement of 135 km of water pipeline and 2,660 m^3 of water silos.

([19])*Mid-term evaluation of the Sapard Programme in Slovenia*, Ministry of Agriculture, Forestry and Food of the Republic of Slovenia, Ljubljana, 2004; *Implementation Report on the SAPARD Programme in Slovenia*, Ministry of Agriculture, Forestry and Food of the Republic of Slovenia, Ljubljana, 2005.

Mid-term Evaluation finds that the prevailing part of the investments was highly dependent on the SAPARD support. Therefore it is assumed that in cases where projects would have been realised without support, they would have mostly been implemented only at a limited scale. Increased investment capacity has undoubtedly resulted in accelerated investments development. SAPARD support has been seen as a favourable co-financing mechanism.

Table 2.4. SAPARD investments by sector in Slovenia

Cattle-breeding	Construction of livestock places for dairy cows and calves with appurtenant equipment (1,429 stalls).
Pig-rearing	Construction of livestock buildings for fattening animals with appurtenant equipment (3,564 stalls). Construction of store-houses and accompanying buildings for forage (fattening animals) with appurtenant equipment (25,977 m^3). Construction of buildings for excretes with appurtenant equipment for PLS and fattening animals (9,343 m^3).
Sheep and goat rearing	Buildings for processing sheep and goat meat with appurtenant equipment (10 kg/day).
Production of vegetables, strawberries and berries	Buildings for storage and manufacture of fresh vegetables for market delivery, with appurtenant equipment 1,480 m^2; greenhouses 15,868 m^2.
Agricultural mechanisation	- 754 pieces for steep positions and mountain areas - 382 pieces for other areas
Purchase of breeding animals	122 head of breeding heifers

Source: DEIAGRA elaboration on Implementation Report on the SAPARD Programme in Slovenia, Ministry of Agriculture, Forestry and Food of the Republic of Slovenia, Ljubljana, 2005

However, its performance in terms of cost efficiency has been questioned. Overall utility of the measure has been limited. For water supply in peripheral areas of Slovenia, considering the extent of the problem and the amount of available funding, it has been questioned whether this measure is the most appropriate to address this problem. It can be concluded that no direct beneficial impacts in terms of improved competitiveness can be expected as a result of the investments, but by the improvement of living and health conditions in the areas concerned, some indirect beneficial impacts can be expected.

Almost sixty percent of the approved projects for 'Processing and marketing' measure have been from fish products and meat producer companies; only about one fifth of the resources were committed to dairy industry. Slightly less than half of all co-financing was destined to new machinery and equipment in meat processing facilities, whereas there were no approved projects for slaughterhouse facilities and fish processing.

The majority of assisted investments had significant positive effects on value added through rationalised use of inputs and more efficient processing since modern equipment and new technologies allowed a noticeable production cost decrease .
Products quality and consequently competitiveness have been improved significantly due to SAPARD. Higher quality and more efficient marketing means assured better market penetration and higher sales value and profitability.

Assisted projects show relevant positive effect also in relation to work health conditions; a reduction in working accidents is expected. All interviewers also stated that investments had notable effect on normative conditions (veterinary and animal welfare standards).
The Evaluation Reports finds that assisted investments have increased the beneficiaries' ability to compete on the European Common market, however only to a limited extent . Normative requirements represent almost no barrier to enter the market, however general export penetration capacities are questionable.

Around 66.7% of the beneficiaries stated that their investments depended to a large extent on SAPARD Programme, while 22.2% stated that the investments depended on SAPARD only to a limited extent.

To conclude it can be said that the SAPARD Programme has had a positive effect in terms of making the Slovenian food processing companies more competitive specially because of improved products quality.

2.3. Implementation of direct payments in the NMS, technical issues

After the Accession, NMS would have been submitted to the same market regime of the other EU members (i.e. the same minimum guaranteed prices and export subsidies), but the implementation of many CAP market measures based on historical references, could not take place by mere application in the NMS territory of regulations in force within the EU-15. In these cases, decisions about measures' operation needed to be negotiated with each Candidate Country. Historical references in fact differ state by state, especially direct payments (DP) and related eligibility conditions (areas, yields, livestock herds, etc.), production quotas and guarantee quantities in several key sectors (milk, sugar, potato starch, dried fodder, olive oil, pressed fruit and vegetables, tobacco, etc.)

A crucial EU Commission choice was the non adoption of the same statistical series used to set up most of CAP historical references and generally accepted for the previous Enlargements during the 1990s ([20]). These series mainly referred to periods prior to 1990, and the Commission found "… most appropriate to determine agricultural production supply management instruments in the various sectors on the basis of most recent historical reference periods for which data are available, i.e. in the present context the time span from 1995 to 1999" (EU Commission, SEC (2002)95 Final, p. 9). Nonetheless, during the above mentioned period, many Candidate Countries' agriculture was still suffering the economic collapse effect following the break-down of socialist regimes in Central and Eastern Europe: crop areas, livestock herds, agricultural output and yields were significantly lower not only than the pre-transition levels, but also with respect to the statistical figures used to set up support measures for the EU-15 countries.

A consequence can be observed in the historical reference yields used to establish the amount of payments for arable crops, which represent about two thirds of total DP amount in the NMS ([21]).Table 2.5. shows the reference yields which multiplied by the basic amount (equal to 63 €/t in all the EU-25 countries) give the area payment ([22]) in each EU country. Then, the total amount of arable crops' payments for each country can be obtained by multiplying the area payment by the base area ([23]) entitled to each country.

The NMS average reference yield results about 70% of the EU-15 average, which means that there is the same difference in the area payment. It should be noticed that also the base area, which influences the arable crops' envelope, , is affected by negative trends of NMS agriculture

([20]) I.e.: to the former German Democratic Republic in 1990 and to Austria, Finland and Sweden in 1995.
([21]) The total DP amount of a given country is obtained by summing all DP payable in the country according to regulations of all the CMO. In most of the EU the largest part comes from the arable crops' CMO.
([22]) The area payment is the payment per ha of the base area.
([23]) The base area is the total area entitled to each country (or region) for the application of the area payment; the base area multiplied by the area payment gives total amount paid to the country (or region) for arable crops.

during the period chosen as historical reference, since the cropped areas tended to be reduced in all countries.

The table indicates important differences within the NMS group: Mediterranean and Baltic countries are particularly disadvantaged; only in Hungary and in Slovenia reference yield is at the same level or higher than the EU-15 average. EU direct payment application mechanism, in this case, has advantaged the countries which maintained relatively high levels of protection on domestic production during the Transition (Slovenia) and the countries most favoured by structural and agro-environmental conditions for cereal and oilseed crops (Hungary, the Czech Republic, Slovakia).

Table 2.5. Reference yields used to set up the amount of direct payments for arable crops in the EU

Country	*reference yields t / ha*	*Index EU-15 = 100*	*Country*	*reference yields t / ha*	*Index NMS = 100*
Belgium	6.24	1.32	Czech Republic	4.20	1.27
Denmark	5.22	1.10	Estonia	2.40	0.72
Germany*	5.66	1.19	Cyprus	2.30	0.69
Greece	3.39	0.71	Latvia	2.50	0.75
Spain	2.90	0.61	Lithuania	2.70	0.81
France	6.02	1.27	Hungary	4.73	1.43
Ireland	6.08	1.28	Malta	2.02	0.61
Italy	3.90	0.82	Poland	3.00	0.90
Luxembourg	4.26	0.90	Slovenia	5.27	1.59
Netherlands	6.66	1.40	Slovakia	4.06	1.22
Portugal	2.90	0.61	**NMS average**	**3.32**	**1.00**
United Kingdom	5.83	1.23	**NMS / EU-15**	**69.9%**	-
Austria	5.27	1.11			
Sweden	4.02	0.85			
Finland	2.82	0.59			
EU-15 average	**4.74**	**1.00**			

** In Germany the reference yield is different in each Lander.*
Source: elaboration from Regulation (EU) n. 1782/2003 (as amended by Regulation (EU) n. 583/2004).

Phasing-in mechanism is the other important issue about DP application in the NMS . NMS started to received EU direct payment finance in 2004 at 25% of the level resulting from 2003 CAP Reform application ([24]); they will reach 100% only in 2013, according to the time schedule below:

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
25%	30%	35%	40%	50%	60%	70%	80%	90%	100%

"100%" means the full national NMS entitlements calculated on the basis of the historical references of the 1995-1999 period.

([24]) In particular the EU Regulation n. 1782/2003.

The need of introducing the DP Phasing-in into the Accession Treaty has been explained by the EU Commission as follows:

> "*If direct aids are introduced too quickly in the candidate countries, their short-term positive effects on farm income could be outweighed by their negative impact on restructuring. There is a significant risk that necessary restructuring would be slowed or even stopped, creating a durable vicious circle of low productivity, low standards and high hidden unemployment.*
> *The problem of restructuring in the candidate countries is directly linked to the dualism of their agricultural structures. On the one hand, the commercial sector needs to invest and restructure. On the other hand, subsistence farming continues to play a major role as a social safety net in rural areas. However, part of the subsistence sector may still develop and integrate itself in a market economy.*
> *Yet high levels of direct payments are likely to consolidate existing structures in a period of rapid restructuring. For semi-subsistence farms in particular, high payments would consolidate a type of production based on private consumption by ensuring its viability. There would be little incentive to invest this aid in production or alternative activities, objectives in all cases better targeted by rural development programmes.*
> *Excessive cash injections through direct payments in favour of specific segments of one professional group would risk creating considerable income disparities and social distortions in the rural societies of the new Member States, potentially creating imbalances both within rural areas (due to wide differences in land ownership) and between rural and urban areas.*
> *Finally, introducing direct payments at a low level would contribute to stabilising agricultural income without compromising the process of restructuring."* (EU Commission, SEC(2002) 95 final, p. 5).

It should be said that two years after the Accession there are no signs that the phasing-in is accelerating restructuring of agriculture in NMS. It is also questionable that lower levels of farm income can represent an incentive to investment. Table 2.6 shows NMS national ceilings progression according to the 2005-2013 Phasing-in schedule ([25]).

Table 2.6. Phasing in of direct payments in the NMS, progression of national ceilings from 2005 to 2013 (Million €)

Country	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*
Czech Rep.	228.80	294.55	377.92	469.99	559.15	644.75	730.45	816.05	901.75
Estonia	23.40	27.30	40.40	50.50	60.50	70.60	80.70	90.80	100.90
Cyprus	8.90	12.50	16.30	20.40	24.50	28.60	32.70	36.80	40.90
Latvia	33.90	43.82	60.76	75.61	90.02	103.92	117.82	131.72	145.62
Lithuania	92.00	113.85	154.91	193.08	230.56	267.26	303.96	340.66	377.36
Hungary	350.80	446.31	540.29	672.77	802.61	929.21	1,055.91	1,182.51	1,309.21
Malta	0.67	0.83	1.64	2.05	2.46	2.87	3.28	3.69	4.10
Poland	724.60	980.84	1,263.71	1,572.58	1,870.39	2,155.49	2,449.49	2,725.59	3,010.29
Slovenia	35.80	44.18	58.96	73.53	87.84	101.84	115.84	129.84	143.94
Slovakia	97.70	127.21	161.36	200.91	238.99	275.49	312.09	348.59	385.19
Total	**1,597**	**2,091**	**2,676**	**3,331**	**3,967**	**4,580**	**5,202**	**5,806**	**6,419**

Source: Regulation (EU) n. 1782/2003 (as amended by Regulation (EU) n. 1156/2004).

([25]) The table takes into account consequences of the CMO-Sugar's 2006 reform.

Table 2.7 displays payments development per work unit (AWU) and per ha of Utilised Agricultural Area along the Phasing-in period in the NMS and in the EU-15. The figures have been obtained by dividing the yearly national ceilings by the AWU of each country in year 2005, and by the UAA of year 2004 ([26]).

In 2005-2006 NMS work units have obtained in average about 10% of the amount of the payments for the EU-15 AWU. *Ceteris paribus*, the proportion increases up to 30.1% in 2013. As regards the agricultural area, data indicate a variation from 22.1% in 2005, to 70.5% in 2013.

Table 2.7. Direct payments in the NMS, amount of direct payments per work unit (AWU) and per ha of Utilised Agricultural Area (UAA) in selected years.*

Country	*2005*	*2006*	*2009*	*2012*	*2013*	*2013*
	€/AWU	*€/AWU*	*€/AWU*	*€/AWU*	*€/AWU*	*NMS = 1*
Czech Republic	1,458	1,877	3,564	5,201	5,747	3.15
Estonia	619	722	1,600	2,401	2,668	1.46
Cyprus	406	571	1,119	1,680	1,868	1.02
Latvia	249	322	661	967	1,069	0.59
Lithuania	608	752	1,524	2,252	2,494	1.37
Hungary	674	857	1,542	2,271	2,515	1.38
Malta	156	193	572	858	953	0.52
Poland	316	428	816	1,189	1,313	0.72
Slovenia	394	486	967	1,429	1,584	0.87
Slovakia	963	1,254	2,355	3,436	3,796	2.08
NMS (average)	**454**	**595**	**1,129**	**1,653**	**1,827**	**1.00**
EU-15 (average)	4,811	5,894	6,095	6,066	6,066	
EU25 (average)	3,167	3,894	4,221	4,400	4,466	
NMS / EU-15	**9.4%**	**10.1%**	**18.5%**	**27.2%**	**30.1%**	
Country	*€/ha*	*€/ha*	*€/ha*	*€/ha*	*€/ha*	*NMS = 1*
Czech Republic	63	81	154	225	248	1.29
Estonia	30	35	79	118	131	0.68
Cyprus	56	79	155	233	259	1.35
Latvia	21	27	55	80	89	0.46
Lithuania	35	44	89	131	145	0.75
Hungary	60	76	137	202	223	1.16
Malta	70	87	257	385	428	2.23
Poland	44	60	115	167	185	0.96
Slovenia	73	90	179	265	293	1.53
Slovakia	50	66	124	180	199	1.04
NMS (average)	**48**	**63**	**119**	**174**	**192**	**1.00**
EU-15 (average)	216	265	274	273	273	
EU25 (average)	182	223	242	252	256	
NMS / EU-15	**22.1%**	**23.6%**	**43.4%**	**63.8%**	**70.5%**	

** The amounts per AWU have been obtained by dividing the yearly national ceilings by AWU in 2005; the amounts per ha by dividing the yearly national ceilings by the UAA in 2004;*
Source: own calculations from Regulation (EU) n. 1782/2003 (as amended by Regulation (EU) n. 1156/2004; for data on national ceilings); EUROSTAT on-line database, updated at 26 Oct. 2006 (for AWU data); EU Commission – DG Agri, 2006-a (for UAA data).

([26])UAA does not always correspond with the DP eligible area. Then, the figures do not represent the amount of payments effectively delivered, they are only roughly indicative of the comprehensive impact of DP on agriculture of the different countries.

The table also shows differences among NMS. Indicators are referred to 2013, but variations along the period are not significant. In terms of payments per AWU the best results have been obtained by Czech Republic (3.15 times the NMS average), Slovakia (2.08), and Estonia, Lithuania, and Hungary (between 1.37 and 1.46); Malta (0.52) and Latvia (0.59) are far below NMS average; Poland (0.72) and Slovenia (0.87) are in a weak position. Payments per ha of UAA seem to compensate in part that situation: here Malta is in first position (2.23 times the NMS average payment per ha of AWU); then Hungary, Czech Republic, Cyprus, and Slovenia (between 1.16 and 1.53); Poland and Slovakia are around the NMS average; lastly Baltic states (between 0.46 and 0.75).

NMS can be allowed by the Commission to deliver to their farmers complementary payments financed either by national budgets and EU Rural Development funds (the so-called top-up direct payments). With the 30% option, NMS can increase the amount indicated in the Phasing-in schedule up to a further 30% (e.g. in 2007: 40% scheduled + 30% top-up = 70% of the full DP envelope). With the pre-Accession formula, NMS which already had DP systems before Accession, and which are disadvantaged by the new system, can add top-up payments to pre-Accession level, plus a further 10%. In both cases, direct payments can reach the amount of the full national envelope prior to 2013, but can not exceed it.
All NMS has used the top-up option. According to OECD sources, in the first year after Accession, NMS direct payment level was in general around 50% of the EU-15 level, except for Slovenia (85%) and Latvia (69%) (Moreddu, 2005).

Because of the difficulties encountered before the Accession in implementing proper CAP administrative management systems, (especially Paying Agencies and Integrated Administration Control System, IACS), NMS were given possibility to adopt a simplified system to deliver payments to farmers: the Single Area Payment Scheme (SAPS). SAPS is a de-coupled payment model, based on a flat rate per hectare of agricultural land (obtained by dividing the DP national amount by the national area eligible for payments) and not on farmers' historical entitlements, as in the case of the standard Single Farm Payment (SFP) introduced with the 2003 CAP Reform.Starting from 2007, countries which adopted the SAPS in 2004, should implement a different single payment scheme: the mandatory regional model specifically created for NMS. This deadline can be postponed for two years, but NMS should comply with the IACS requirements. If they will not meet this condition, they will continue with the SAPS, but from 2009 payments will be frozen at 50% of the 2013 ceiling.

The other two NMS options concerned either the application from 2004 to 2006 of the traditional partially de-coupled DP system (with the shift from 2007 to the mandatory NMS regional model) ([27]) or the mandatory regional model already from 2005. This region-based single payment scheme implies: partition of national ceiling into regional ceilings according to objective criteria; setting-up eligible areas at regional level, excluding forests and permanent crops, with exceptions for olivegrows; entitlement of the area declared eligible in the first year of application; payments based on a flat rate per hectare within each region, with differentiation possibility for meadows.

Out of all 10 NMS only Slovenia and Malta decided not to use SAPS and to start with the traditional DP scheme in 2004. Other advantages of the single payment scheme for NMS are: minimum eligible area set at 0.3 ha; eligibility of permanent crops, vegetables, and kitchen gardens ([28]); optional set-aside and "cross-compliance" measures ([29]) (except for maintenance of

([27]) Also in this case NMS should comply with the IACS requirements.
([28]) In the EU-15 only arable crops and permanent meadows are eligible for direct payments.

land in "good agricultural and ecological conditions"); non-application of the financial discipline and "modulation" ([30]), until the countries will accede to 100% of the DP national amounts.

2.4. Differences in agricultural support among sectors and analysis on OECD indicators of agricultural support

Table 2.8. Average farm agricultural area per work unit (AWU), average amount of farm subsidies per AWU, and % share of subsidies on total farm receipts by type of farm specialisation in the NMS (FADN sample – year 2004)

Types of farm specialisation		1. field crops	2. horti-culture	3. per-manent crops	4. grazing livestock	5. grani-vores	6. mixed cropping	7. mixed livestock	8. mixed crops-livestock
Czech Rep.	Farm agricultural area (ha/AWU)	40.8	4.5	7.2	36.4	3.9	23.5	21.1	27.3
	Total farm receipts* €/AWU	39,305	22,072	21,062	28,842	52,656	32,777	31,116	31,364
	Farm subsidies €/AWU	5,119	541	2,118	7,892	979	3,402	3,400	4,352
	% of subsidies in total farm receipts	13.0%	2.5%	10.1%	27.4%	1.9%	10.4%	10.9%	13.9%
Estonia	Farm agricultural area (ha/AWU)	62.6	2.3	-	34.8	-	17.3	-	39.1
	Total farm receipts* €/AWU	26,135	17,405	-	22,861	-	8,030	-	21,069
	Farm subsidies €/AWU	8,208	277	-	4,606	-	1,772	-	5,045
	% of subsidies in total farm receipts	31.4%	1.6%	-	20.1%	-	22.1%	-	23.9%
Hungary	Farm agricultural area (ha/AWU)	46.6	3.2	6.3	26.4	4.8	22.6	20.9	28.6
	Total farm receipts* €/AWU	43,481	14,946	15,478	37,564	49,571	25,434	36,157	36,559
	Farm subsidies €/AWU	8,298	855	1,514	5,532	3,270	3,969	4,296	5,307
	% of subsidies in total farm receipts	19.1%	5.7%	9.8%	14.7%	6.6%	15.6%	11.9%	14.5%
Lithuania	Farm agricultural area (ha/AWU)	44.9	4.0	-	22.8	-	17.0	16.7	20.4
	Total farm receipts* €/AWU	23,650	9,389	-	13,711	-	9,375	9,817	12,255
	Farm subsidies €/AWU	5,599	1,340	-	2,816	-	2,106	2,030	3,249
	% of subsidies in total farm receipts	23.7%	14.3%	-	20.5%	-	22.5%	20.7%	26.5%

** Total farm receipts = value of farm total output + total farm subsidies (including subsidies on farm investments)*
Source: own calculations from FADN Data.

([29])In the EU-15, to receive direct payments farmers should set-aside from cultivation a part of their land and undertake commitments to reduce the farm production environmental impact and respect food safety and animal welfare standards.

([30])The "financial discipline" gives the EU Commission the possibility of proposing cuts in the EU Budget devoted to CAP-market policy (including market support measures and direct payments), if it foresees an overrun of the provisional expenditure in the subsequent years. In the CAP jargon "Modulation" indicates those measures which impose a progressive farm direct payments reduction ; EU funds recovered through Modulation become available for the Rural Development Policy budget. In the EU-15 Modulation is not applied to farm which receive less than 5,000 EUR of direct payments and in the outermost regions.

Table 2.9.Values and indicators of estimated agricultural support in the NMS and in the EU-15 (Millions €, constant 2005 values)*

Millions € (constant 2005 values)	*New Member States***				*EU-15*	
	Pre-Accession		*Post-Accession*			
	average 1996-1998	*average 1999-2001*	*2004*	*2005*	*2004*	*2005*
Producer Support Estimate (PSE)	**6,279**	**6,039**	**8,117**	**9,145**	**103,833**	**98,498**
Market price support (MPS)	4,669	4,013	4,295	3,805	54,469	43,216
Direct payments and other finance to producers	1,610	2,026	3,822	5,341	49,364	55,282
- based on output	*92*	*270*	*204*	*13*	*3,617*	*4,759*
- based on area planted/animal numbers	*291*	*562*	*820*	*1,439*	*30,128*	*20,914*
- based on historical entitlements	*30*	*72*	*1,494*	*1,754*	*636*	*15,275*
- based on input use	*1,174*	*1,081*	*1,191*	*1,692*	*9,124*	*8,577*
- based on input constraints	*5*	*10*	*56*	*337*	*6,448*	*6,268*
- based on overall farming income	*5*	*22*	*30*	*22*	-	-
- miscellaneous	*12*	*9*	*27*	*83*	*-588*	*-511*
General Services Support Estimate (GSSE)	**800**	**804**	**1,114**	**1,255**	**8,672**	**8,569**
Research and development	244	160	94	100	1,597	1,602
Agricultural schools	220	141	118	154	1,004	923
Inspection services	78	135	131	100	327	321
Infrastructure	141	129	264	378	2,238	2,449
Marketing and promotion	42	71	148	133	2,529	2,479
Public stockholding	33	21	176	173	811	646
Miscellaneous	42	147	182	216	166	149
Transfers to consumers from taxpayers	**21**	**35**	**169**	**6**	**3,746**	**3,620**
Total Support Estimate (TSE)	**7,100**	**6,877**	**9,401**	**10,406**	**116,251**	**110,687**
Resources						
Transfers from consumers	5,004	4,522	2,592	2,403	54,490	44,756
Transfers from taxpayers	2,382	2,579	6,886	7,958	62,145	66,509
Budget revenues	-286	-224	-77	45	-383	-578
Total resources	**7,100**	**6,877**	**9,401**	**10,406**	**116,251**	**110,687**
Producer support indices						
Percentage PSE	18.9%	19.4%	26.1%	28.2%	33.7%	32.8%
Producer NAC index	1.23	1.24	1.35	1.39	1.51	1.49
Consumer support indices						
Percentage CSE	-16.8%	-16.0%	-11.9%	-13.8%	-20.2%	-16.7%
Consumer NAC index	1.20	1.19	1.13	1.16	1.25	1.20

** Based on EUROSTAT estimations of the annual Harmonised Indices of Consumer Prices in the EU (year 2005 = 100% of current value).*

*** Data from 1996 to 2001 do not include Cyprus and Malta; data of years 2002 and 2003 are not available.*

Source: own calculations from OECD database (2002, 2005 and 2006).

Table 2.10. Percentage composition of estimated value of agricultural support in the NMS and in the EU-15

Percentages based on values expressed in € (constant 2005 values)	*New Member States***				*EU-15*	
	Pre-Accession		*Post-Accession*			
	Yearly average 1996-1998	*Yearly average 1999-2001*	*2004*	*2005*	*2004*	*2005*
Producer Support Estimate (PSE)	**88.4 %**	**87.8 %**	**86.3 %**	**87.9 %**	**89.3 %**	**89.0 %**
Market price support (MPS)	65.8 %	58.3 %	45.7 %	36.6 %	46.9 %	39.0 %
Direct payments and other finance to producers	22.7 %	29.5 %	40.7 %	51.3 %	42.5 %	49.9 %
- based on output	*1.3%*	*3.9%*	*2.2%*	*0.1%*	*3.1%*	*4.3%*
- based on area planted/animal numbers	*4.1%*	*8.2%*	*8.7%*	*13.8 %*	*25.9 %*	*18.9 %*
- based on historical entitlements	*0.4%*	*1.1%*	*15.9 %*	*16.9 %*	*0.5%*	*13.8 %*
- based on input use	*16.5 %*	*15.7 %*	*12.7 %*	*16.3 %*	*7.8%*	*7.7%*
- based on input constraints	*0.1%*	*0.1%*	*0.6%*	*3.2%*	*5.5%*	*5.7%*
- based on overall farming income	*0.1%*	*0.3%*	*0.3%*	*0.2%*	*0.0%*	*0.0%*
- miscellaneous	*0.2%*	*0.1%*	*0.3%*	*0.8%*	*-0.5%*	*-0.5%*
General Services Support Estimate (GSSE)	**11.3 %**	**11.7 %**	**11.9 %**	**12.1 %**	**7.5 %**	**7.7 %**
Research and development	3.4%	2.3%	1.0%	1.0%	1.4%	1.4%
Agricultural schools	3.1%	2.1%	1.3%	1.5%	0.9%	0.8%
Inspection services	1.1%	2.0%	1.4%	1.0%	0.3%	0.3%
Infrastructure	2.0%	1.9%	2.8%	3.6%	1.9%	2.2%
Marketing and promotion	0.6%	1.0%	1.6%	1.3%	2.2%	2.2%
Public stockholding	0.5%	0.3%	1.9%	1.7%	0.7%	0.6%
Miscellaneous	0.6%	2.1%	1.9%	2.1%	0.1%	0.1%
Transfers to consumers from taxpayers	**0.3%**	**0.5%**	**1.8%**	**0.1%**	**3.2 %**	**3.3 %**
Total Support Estimate (TSE)	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**	**100. 0%**	**100. 0%**
Resources						
Transfers from consumers	70.5 %	65.8 %	27.6 %	23.1 %	46.9 %	40.4 %
Transfers from taxpayers	33.6 %	37.5 %	73.2 %	76.5 %	53.5 %	60.1 %
Budget revenues	-4.0%	-3.3%	-0.8%	0.4%	-0.3%	-0.5%
Total resources	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**	**100. 0%**	**100. 0%**

** Data from 1996 to 2001 do not include Cyprus and Malta; data of years 2002 and 2003 are not available.*
Source: own calculations from OECD database (2002, 2005 and 2006).

Table 2.11.Variation of agricultural support indicators in the NMS (1999-2001 yearly average = 100).*

Indicators	*Pre-Accession*		*Post-Accession*	
	Yearly average 1996-1998	*Yearly average 1999-2001*	*2004*	*2005*
Producer Support Estimate (PSE)	104.0	100.0	134.4	151.4
Market price support (MPS)	116.4	100.0	107.0	94.8
Payments and other finance to producers	79.5	100.0	188.7	263.6
General Services Support Estimate (GSSE)	99.6	100.0	138.7	156.2
Total Support Estimate (TSE)	103.2	100.0	136.7	151.3
Resources				
Transfers from consumers	110.7	100.0	57.3	53.1
Transfers from taxpayers	92.4	100.0	267.0	308.5

** Data from 1996 to 2001 do not include Cyprus and Malta; data of years 2002 and 2003 are not available; the indices are calculated from values at constant € (year 2005).*
Source: own calculations from OECD database (2002, 2005 and 2006).

Table 2.12. Average value of agricultural support per Annual Work Unit (AWU) in the NMS and in the EU-15

€ (constant 2005 values) Years	*New Member States**						*EU-15*	
	1998	*1999*	*2000*	*2001*	*2004*	*2005*	*2004*	*2005*
Total Annual Work Units (000 AWU)**	4,557	4,142	4,001	3,962	3,314	3,216	5,919	5,794
(a) Total value of production per AWU at farm gate	7,569	6,613	8,700	10,068	8,229	8,411	42,816	42,239
Agricultural support per AWU								
Producer Support Estimate (PSE)	1,935	1,713	1,204	1,565	2,450	2,844	17,541	17,000
Market Price Support (MPS)	*1,511*	*1,260*	*714*	*1,000*	*1,296*	*1,183*	*9,202*	*7,459*
(b) Direct Payments and other finance to producers	*425*	*453*	*490*	*565*	*1,153*	*1,661*	*8,339*	*9,541*
General Services Support Estimate (GSSE)	218	206	191	201	336	390	1,465	1,479
Transfers to consumers from taxpayers	6	8	11	7	51	2	633	625
Total support (TSE) per AWU	**2,160**	**1,927**	**1,406**	**1,773**	**2,837**	**3,236**	**19,639**	**19,104**
Total farm receipts per AWU (a + b)	7,071	6,779	7,695	8,737	9,383	10,071	52,083	51,780
Producer NAC (index)	1.38	1.34	1.19	1.22	1.35	1.39	1.51	1.49
Agricultural support per AWU as percentage of total value of production								
(a) Total value of production per AWU at farm gate	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Agricultural support per AWU								
Producer Support Estimate (PSE)	29.1%	27.1%	16.7%	19.2%	29.8%	33.8%	40.1%	40.2%
Market Price Support (MPS)	*22.7%*	*19.9%*	*9.9%*	*12.2%*	*15.8%*	*14.1%*	*21.0%*	*17.7%*
(b) Direct Payments and other finance to producers	*6.4%*	*7.2%*	*6.8%*	*6.9%*	*14.0%*	*19.7%*	*19.1%*	*22.6%*
General Services Support Estimate (GSSE)	3.3%	3.3%	2.6%	2.5%	4.1%	4.6%	3.3%	3.5%
Transfers to consumers from taxpayers	0.1%	0.1%	0.2%	0.1%	0.6%	0.0%	1.4%	1.5%
Total support (TSE) per AWU	**32.5%**	**30.5%**	**19.5%**	**21.7%**	**34.5%**	**38.5%**	**44.9%**	**45.2%**
Total farm receipts per AWU (a + b)	106.4%	107.2%	106.8%	106.9%	114.0%	119.7%	119.1%	122.6%

** Data from 1998 to 2001 do not include Cyprus and Malta; data of years 2002 and 2003 are not available.*
*** Data from EUROSTAT on-line database (Feb. 2006).*
Source: own calculations from OECD database (2002, 2005 and 2006).

Table 2.13.Variation of agricultural support indicators in the NMS (1999-2001 yearly average = 100).*

Indicators	Indices of variation in the NMS			NMS values/EU-15 values	
	Average 1999-2001	2004	2005	2004	2005
Total Annual Work Units (000 AWU)**	100.0	82.1	79.7	56.0%	55.5%
(a) Total value of production per AWU at farm gate	100.0	114.0	116.5	18.8%	19.9%
Agricultural support per AWU					
Producer Support Estimate (PSE)	100.0	163.7	190.0	14.0%	16.7%
Market Price Support (MPS)	*100.0*	*130.4*	*119.0*	*14.1%*	*15.9%*
(b) Direct Payments and other finance to producers	*100.0*	*229.8*	*330.8*	*13.8%*	*17.4%*
General Services Support Estimate (GSSE)	100.0	168.9	195.9	23.0%	26.4%
Transfers to consumers from taxpayers	100.0	589.1	21.0	8.1%	0.3%
Total support (TSE) per AWU	**100.0**	**166.5**	**189.9**	**14.4%**	**16.9%**
Total farm receipts per AWU (a + b)	100.0	121.5	130.4	18.0%	19.5%

** Data from 1999 to 2001 do not include Cyprus and Malta; NMS data of years 2002 and 2003 are not available; calculations are based on values expressed at constant € 2005.*
*** Data from EUROSTAT on-line database (Feb. 2006).*
Source: own calculations from OECD database (2002, 2005 and 2006).

3. Annex to Chapter 3

3.1. Agricultural policies in sectors non covered by the CAP

In this Annex we analyse national subsidy systems in Hungary, Latvia, Estonia, the Czech Republic, and Poland. Concerning existing state aid measures in NMS agriculture, reference can be made to the state aid schemes list communicated to the Commission within four months following the Accession date. These are the measures which Member States wished to be regarded as existing aid until the end of third year from the Accession date, within the meaning of EC Treaty, Article 88(1) ([31]).

In practice, due to different reasons (e.g. tight budget), often only some of these schemes have been actually granted in the single NMS. In Hungary, for instance, 108 support schemes were notified but because of the rigid budget only a couple of them have been actually granted, most notably output based payments for pig and poultry producers. In Hungary the priority assigned to Complementary National Direct Payments (CNPD) financing envelopes and to co-financing of National Rural Development Plan (NRDP) and Agriculture and Rural Development Operational Program (ARDOP) was another reason of the lower implementation of the national aid.

Information about the industries in question were collected for five out of ten NMS. It was not possible to collect information from the rest of the countries, despite the fact that the competent authorities (Ministry of Agriculture and Research Institutes) of the other five states have also been contacted several times and were required to supply assistance. Information were collected and organised by locale experts, based on official data and interviews.

3.1.1. NMS national support for fruits and vegetables

In **Hungary** the EU accession has caused more unfavourable results in the fruit and vegetables industry than it was expected. Though no production limits and administrative restrictions are set, the national industry is in a very vulnerable situation because of the national markets opening and the subsequent EU and Third Countries import. This is due to weak national industry organisation, to significant production surplus (apples and cherries in particular), and to high production costs and low incomes. As a consequence national fruits and vegetables prices have decreased significantly following the Accession. In 2004, due to unfavourable market situation, vegetables' production area has decreased from 104,000 to 83,000 ha. The total vegetable production has decreased from 2.03 to 1.5 millions tonnes (high precipitation level also had a role in this case). Due to the increasing import of vegetables, the industry trade balance is gradually deteriorating.

In **Latvia** fruit and berry fruit crop areas have increased by 1.5%. Despite this modest increase, production and yield increase was significantly higher, (305% variation between 2004 and 2005). This is explained by average productivity development especially for apples, pears, plums and raspberries.. However, despite the above mentioned development, the value at basic prices decreased by 8% in 2005 compared to 2004.

Vegetables are mainly farmed in the so called individual farms, including those in sole merchants, in total making 12.9 thousand ha vegetable sowings in 2005. Open and covered field

([31]) For reference, see the site: http://ec.europa.eu/agriculture/stateaid/newms/index_en.htm

vegetable sowings, production volumes and yields per hectare have the tendency to decrease year by year. The value at basic prices decreased by 12% in 2005 compared to 2004. Vegetables sowings make 1.3% from the total sowings of cultivated plants. The amount of open field vegetable plantations in the last three years has decreased by 9.1%; also the average productivity indicators in the last three years have decreased by 19.8%. Covered plantations area has decreased by 48% and the total yield has decreased by 20.8% during the last three years.

Locally grown fruits and vegetables provision is still insufficient, particularly in winter. The main reason is the lack of appropriate and efficient fruit and vegetable storage warehouses. A very small amount of support for fruits and vegetables is provided by national programmes and activities (Table 3.1.).

Table 3.1. National subsidies for the fruit and vegetables sector in Latvia

Aid programme	*% of total agricultural subsidies 2004**	*% of total agricultural subsidies 2005***
Programme		
- Aid for development of crop production	15.3	4.2
Activities		
- Vegetables (open areas)	0.6	0.0
- Vegetables and strawberries (covered areas)	1.3	0.0
- Fruit and berry fruit	1.5	1.5

** 19 million LVL. ** 24.3 million LVL*
Source: Malece, 2006.

State aid in 2005 was granted for establishment of productive long-term plantations. Support was also foreseen for integrated growing system of perennial plants, but since the European Commission has not confirmed it in time, payments have been postponed. Support was also envisaged for promoting initial accreditation of fruit and vegetable new producers' groups, as well as for covering expenses related to insurance premiums purchase.

In **Estonia** 3,100 ha open field vegetables were sowed and planted in 2004 and 2,800 ha were harvested, which makes up only 0.6% of the growing area under various agricultural species. Part of the harvest was lost in the field before ripeness, some was not harvested (since rainy weather prevented mechanical harvesting). The total vegetable yield from open fields was 40,800 tons, which is about 10,000 tons less than in 2003, also due to a 600 ha reduction of harvested area. Domestic vegetable production is not sufficient to satisfy domestic demand, meeting only half of it. Primary vegetables prices were lower last year than in 2003.
The total fruit trees and berry bushes area was around 15,000 hectares, making up 3% of cropland. Apple trees account for 55% of the total area under fruit tree and berry cultivation area. Next come plum orchards, black currant and strawberry patches (both with around 8%). Weather conditions for the 2004 vegetative period (frost in May, with the minimum temperature -7°C in some places) were unfavourable for berry cultivation. 2004 was not a bumper year for apple trees. Yields were affected by spring frost and excessive moisture. Apple prices were 30% higher than in 2003 due to low yields. Domestic apple prices in stores have remained on the same level for three years.

In the **Czech Republic** (CR), total fruit area of orchards is decreasing, and intensive fruit growing area was stagnating, with only 18 ha decrease compared to 2004. In 2005 the Czech Statistical Bureau counted 21,948 ha totally, which means a 12% decrease compared to 2004. Southern Moravia is the most important fruit growing area. Intensive fruit orchards represent the largest area of the total with 17 141 ha. Apple orchards are more then half of this area were (9,057 ha), followed by cherry-trees (12%), apricots (11%), peaches (7,6%) and currant (7,4%). Overall fruit production in the Czech Republic in 2004 was 435,603 tons (21% more than in 2003). There was significant increase of fruit import in 2004 (38%), followed by more recent increase in 2005 (5,5%). Czech fruit export is also growing, with a 9,5% increase in 2005 compared to 2004.

In 2005 national subsidies summed € 2.024 million, of which 21.4% were for restructuring and 17.7% for spatial and technical isolated buildings. Few resources were also given for seminars, training and expositions.

Most of Czech Republic vegetable sales go through large super or hypermarkets (80%) which put emphasis on cheap production. Thus Czech Republic import is growing rapidly (in 2004 the passive balance accounted for more than € 160 million). Czech producers can not really compete with foreign imports, mainly from Spain, Poland, the Netherlands and Germany. 2004 was rather problematic for Czech producers, because of decreasing prices due to EU high production. As a consequence vegetable area decreased around 18% in 2005. However, good weather conditions limited production loss to 8% in 2005.

In **Poland** fruit and vegetables market are functioning traditionally well and horizontal integration is continuing slowly (a big problem is very low consumption of fruits, the lowest one among all EU countries), leading to oversupply. Following Accession, deliveries from EU gained importance for most of the so called sensitive products (cereals, meat and dairy). The share of EU imports declined only for apples, rape seed oil, apples and frozen fruit. Should further analyses confirm the above observations, they may guide decisions concerning the specialisation of Polish farms according to its distinguishing features (relatively large agricultural land per capita in comparison with most EU countries, which favours crops specialisation).

In the fruit and vegetable market the number of registered producer groups increased from 3 in 2003 to 22 in 2005. However no horticultural producer group has yet applied for CAP financial support for fruit and vegetables market withdrawing. At the same time more than 70 charitable organisations have been approved for products distribution which could potentially be withdrawn. According to farmers this situation is determined by many factors. Besides insufficient information , the limitation of this instrument to only 4 fruits and vegetables species is called into question (namely apples, pears, tomatoes and cauliflower; 'soft' fruits are not included).

In 2004-2006 89 thousand tons of exported fresh products were subsidised (system B) , 98% of which were fresh apples; the rest were tomatoes (~1-2 ths. t) and citrus fruits, with a total value 12 mln zł (nearly 3 mln €).

Some general conclusions can be drawn concerning the fruits and vegetables industry in the countries above.

a. EU accession caused more unfavourable results in the fruit and vegetables industry due to the opening of the national market (import products from EU and third countries) and to the weak organisation at national level. National subsidies are poor and/or have not been applied at all.
b. In general, high production costs and price decrease (for both fruits and vegetables) seriously limit farmers' income and industry development.
c. Accession often resulted in increased competition from EU production. This is an additional factor leading to industry decline in some countries. National production (normally non sufficient to fulfil domestic demand) has been further hindered: fruits and vegetables cultivated area, yields and production volume reduced, EU import increased.
d. Hungary is a typical case in this framework, but some exemptions do exist. In Poland promising trends appear, national production is competitive and contributes to limiting EU imports. In Latvia, despite price decrease, area dedicated to fruit production, production volume and yields increase (especially for apples, pears, plums and raspberries).

Tables below summarise main national trends in fruits and vegetable industry.

Table 3.2. National trends in the fruit industry

Elements	*Hungary*	*Latvia*	*Estonia*	*Czech Republic*	*Poland*	*Slovenia*
Price	Decreasing	Decreasing	Increasing (apples)		-	-
Area	-	Increasing	-	Decreasing	-	-
Production	-	Increasing (apples, pears, plums, raspberries)	-	Increasing	-	-
Yields	-	Increasing	Decreasing.		-	-
Import			-	Increasing	Decreasing	-
Export			-	Increasing	-	-
Provision of locally grown fruits	-	Not sufficient.	-	-	-	-
Future perspectives	Negative	Stable in the short run	Stable in the short run	Stable in the short run	Positive	-
National subsidies	Not existing	Existing	n.a.	Existing	Existing	Not existing

Sources: DEIAGRA elaborations from local experts' reports

Table 3.3. National trends in the fruit industry

Elements	*Hungary*	*Latvia*	*Estonia*	*Czech Republic*	*Poland*	*Slovenia*
Price	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	-
Area	Decreasing	Decreasing	Decreasing	Decreasing	-	-
Production	Decreasing	Decreasing	-	Decreasing	-	-
Yields	-	Decreasing	Decreasing	-	-	-
Import	Increasing	-		Increasing	-	-
Export	Stagnating	-			-	-
Provision of locally grown fruits	-	Not sufficient	Not sufficient.	-	-	-
Future perspectives	Negative	Negative	Negative	Negative	Positive	-
National subsidies	Not existing	Existing (very low)	n.a.	n.a.	Existing	Not existing

Sources: DEIAGRA elaborations from local experts' reports

3.1.2. NMS national support for pig and poultry sectors

In **Hungary**, livestock industry is the largest cereal consumer. Pig meat and poultry industries will hold a relevant position in feed grains total demand development. Although livestock producers in Hungary enjoyed some direct subsidies, they had almost no access to investment and capital aids in the pre-accession years. This partly explains the drop-back in production, even when payments per head continued after Accession to help pig and poultry producers in meeting EU environmental, animal-health and welfare requirements ([32]). Late approval of Hungarian SAPARD, ARDOP and NRDP by the

European Commission (and thus payments' delay) have also contributed to livestock industries decline. In December 2005, pigs in Hungary hardly exceeded 3.85 millions heads (for comparison, that figure changed between 8 and 10 millions in the second half of 1980s). Breeding sows were 277 thousand, 19 thousand less than in December 2004. In April 2006, pig heads dropped bellow 3.85 millions.

In 2004, broiler industry's output reached over 230 thousand tonnes live weight, the highest compared to past five years. In 2005, due to the continuous producer prices decline since August 2004, production dropped back slightly. In the mid-term, broiler meat production is expected to change between 180 and 185 thousand tonnes (slaughtered weight). Due to production costs increase, low purchase prices and outbreaks of avian flu, broiler industry faced losses in 2006 which can continues in the mid-term.

Huge cheap feed grains stocks would lead to positive expectations concerning pig meat and poultry industries. Nevertheless structural problems, (e.g. lack of capital, modernisation need, compliance with EU environmental, animal-health and welfare requirements) are all deterring factor to further development. Several national support programs have been maintained following EU accession, which include farm afforestation, subsidised veterinary costs, intra-EU agro-food marketing, water management, training, education and research, credit subsidies, producer organisations, etc. But as a result of institutional and macro-economic changes occurred in 2004, national expenditures for agriculture decreased heavily in 2004 compared to 2003. Financing CNDP envelopes and co-financing NRDP and ARDOP have enjoyed priority over national support. Although 108 national support schemes were notified, only two of them have been actually granted (output based payments for pig and poultry producers) because of budgetary problems. State aids notified may be granted for a 3 years transitional period, after which all national subsidies should comply with EU guidelines. Pig and poultry output based payments include national support to compensate extra costs due to animal welfare requirements. Transition period ends in 2007.

Table 3.4. National support for pig slaughtering in Hungary

Year	*Total*	*Per head*	*Eligibility criteria*
2004	HUF 7.200 bln	HUF 2000 per head (for maximum 3.60 mln heads)	*MARD reg. 32/1999 (III. 31) on animal welfare, and Meat Product Board membership.*
2005	HUF 5.976 bln.	HUF 1800 per head (for maximum 3.32 mln heads)	
2006	HUF 5.976 bln.	HUF 1800 per head (for maximum 3.32 mln heads)	
2007	Transitional period is over.	-	-

Sources: Potori, 2006

([32])Support to help farmers to meet EU animal health and welfare requirements was abolished in October 2004. However, in December 2004 government decided to switch € 58 million away from agro-environmental programmes to the 2005 national farm budget to provide support to meet EU standards in pig and poultry sectors.

Table 3.5. National support for poultry in Hungary

Year	*Total*	*Per head*	*Eligibility criteria*
2004	HUF 4.085 bln	HUF 9.5 per kg (for maximum 430 thsnd t)	*MARD reg. 32/1999 (III. 31) on animal welfare, and Poultry Product Board membership.*
2005	HUF 4.085 bln	HUF 9.5 per kg (for maximum 430 thsnd t)	
2006	HUF 4.009 bln	HUF 9.5 per kg (for maximum 422 thsnd t)	
2007	Transitional period is over.		

Sources: Potori, 2006.

In **Latvia** national subsidies programmes include few support and activities for pork and poultry industries. Pig-breeding industry has a significant share in agricultural product market. Pork production is stable and there is a development potential. Production is concentrated in the largest farms and structural changes are underway in pig-breeding industry and the. Compared to 2004, heads in 100-199 pigs farms have increased by 17%, but in farms with 2000-4999 pigs the number has grown by 11%. In 2005 total number of pigs has decreased by only 1.8 %. At the same time, farms with sows has decreased by 22%, but total sows have slightly increased. Despite negative trend of pigs, pork production increased in the 2005 compared to 2004. Due to domestic and EU competition pork quality has improved (quality product receive premium price), production and trade (export to third countries) have increased. In 2005 production increased by 4.5%. Industry development is also due to technical and genetic improvement Self-provision with pork in 2005 was 52%.

Table 3.6. National subsidies for the pig and poultry sectors in Latvia

Aid programme	*% of total agricultural subsidies 2004**	*% of total agricultural subsidies 2005***
Programme		
- Transitional	13.7	1.2
- aid for development of livestock breeding	24.1	28.5
- aid for breed purchase	0.6	3.6
Activities		
- Pig breeding	3.8	3.5

** 19 million LVL. ** 24.3 million LVL*
Source: Malece, 2006.

At the end of 2005 in Latvia there were 4,092 thousand fowls. Starting from 2000 fowl number has increased every year. Accordingly also poultry increases. The number of laying hens in 2005 has decreased, however the total amount of eggs continues to grow (2.4% from 2004 to 2005) ([33]). This is explained by hen increased productivity (number of eggs laid by a single hen).
Significant decrease of poultry consumption (up to 50% in the EU) was observed in early 2006 due to outbreak of the avian flu. Significant amounts of poultry were frozen and stocks increased. Cheap frozen poultry from other member states was brought to Latvian poultry market. The consumption of locally produced poultry has decreased comparatively slightly (approximately by 5%). Poultry (live weight and slaughter weight) continues to grow every year. Poultry consumption continues to grow. In general Latvia poultry and egg industry is stable. Price fluctuations in the EU context are minor. Average price for 100 kg of eggs is

([33]) Since 2003 the amount of eggs and egg products since 2003 have increased for 13.2%.

approximately 10% higher then EU average price. Renovation and reconstruction, which had been done in 2001 –2004, benefited large companies and the industry as a whole thanks to SAPARD.

In **Estonia** in 2004, a total of 67,700 tons of meat was produced, 200 tons more than last year. Pork production decreased by 3%, and poultry production grew of 5%. Pork makes up over half of meat production, which is about 57% (beef production has decreased). In 2004, 38,500 tons of pork were produced. Meat industries bought a total of 328,700 pigs in 2004, 4,300 more than in 2003. The average body mass of pork carcasses continued to be between 75-78 kg. By the end 2004, there were 353,700 pigs in Estonia, which is 9,100 more than the same time in the previous year. After 1 May 2004, the EU pork market system was applied in Estonia, with positive effect on industry development. Pork and mechanically de-boned meat was no longer imported at subsidised prices. This forced meat industries to use more local meat. In 2004, larger meat companies started using a system for measuring lean meat which conforms to EU requirements.

In 2003, 14,400 tons of poultry were produced in Estonia. In 2004 production increased 700 tons or 5% and total production was 15,100 tons. The share of poultry in total meat production was 22% in 2004. Export growth and domestic consumption have determined production development. Sale of boneless meat to Sweden also began. Production growth is related to new crossbreed Ross 388, which has better productivity than previous breeds. Due to stiff competition and a certain amount of influence after EU accession, poultry prices have fallen slightly on domestic market, and are the lowest in the EU market.

In **Czech Republic** pork industry is a very important part of agricultural market and final consumption (slightly over 50% of meat consumption that is 41,1 kg per person in 2005, declining in the long-term). Industry perspectives before Accession were negative. Profitability was 21% in 2000 and 2001, even without direct payments; domestic prices were relatively higher compared with world market. Production costs were to rise further due to compliance with EU *acquis* and a industry decline would have taken place subsequently. This happened in fact late 2004 when pigs total number fell under 3 millions heads (in 1999, the number was over 4 millions), and continued to decrease in 2005. Self provision fell under 90% in year 2005. Restructuring trend is reducing recently. On the other hand, a significant intra–EU trade increase took place with Accession on both import and export side. As import is rising faster than export, trade balance is worsening. In 2005 trade balance was -140mln € (both live pigs and pork meat), more than twice than in 2004. Germany and Poland are the most important importers of Czech pig meat; Slovakia is also a crucial export market. National payments are focused on genetic development (under the programme 'Up-keeping and amelioration of genetic potential of livestock', including pig breeders), but funding is insufficient.

Poultry consumption is increasing over the long-term. The bird flu had negative effects on Czech trade and domestic consumption. Poultry industry is dealing with a slight decrease in number of poultry during 2005 (less than 1% compared to 2004); in 2006 the trend is reversing in comparison with pre-Accession figures. Nevertheless, poultry industry situation is sometimes critical. Growing imports (in 2004 the imports were 64% higher than in 2003) and small consumption decrease in 2006 (26 kg per capita in 2005 , national record, above EU average) created some problem to Czech poultry breeders (a 3,5 mln € estimated monthly loss for Czech breeders). The Czech Ministry of Agriculture even considered adopting Accession Treaty safeguard to avoid poultry market destabilisation. Safeguards clause was not applied and the situation is worsening In 2005 prices dropped down by 4% compared to the previous year. One

of the positive signs in this industry is rising export, which in 2005 was growing more than import (10.9% compared to 2.9%). On the supply side, production cost are rising due to animal welfare compliance. No state financial support exist in this industry.

In **Poland**, poultry prices raised significantly after Accession (15%-18%) together with exports level despite avian influenza.
Pig meat situation is rather stabilised, producer groups are slowly taking place in these industries, but production is still very fragmented. Meat industry is indirectly influenced by SAPS through cereal and fodder prices. National subsidy is not applied.

Table 3.7. and Table 3.8. summarise main national trends in pig and poultry industries in selected countries among NMS. Successful performance of these industries marginally depends on state aids availability. Other factors also strongly contribute to the actual result, among which: market players entrepreneurship, acquired infrastructure and technology level, increasing farmers co-operation, bargaining power. While fruit and vegetables industry is in critical position in the NMS (with the sole exemption of Poland), pig and poultry industries are showing heterogeneous performances. Where national subsidies have not been applied negative trends are foreseen; better performances are expected where state aid schemes are at work. Anyway, state aids are not able alone to produce good result, other conditions are also required (Hungary case is paradigmatic). Import subsidies and unfavourable structural situation are critical factors to explain industry performance. Most NMS can not compete with imported products, mainly because of lower prices, lower organisation level among national producers, low modernisation level, lack of capital, low level of compliance with animal welfare and health EU requirements, inefficient storage facilities.

Table 3.7. Pig industry trends in selected NMS countries

Elements	*Hungary*	*Latvia*	*Estonia*	*Czech Republic*	*Poland*	*Slovenia*
Number of pigs	Decreasing	Slightly decreasing (in 2005 38.45 ths. tons, 4.5% more than in 2004)	-	Decreasing	-	-
Production	Decreasing	Stable with possibilities to increase	Decreasing	-	Stable	-
Pork quality	-	Improving	-	-	-	-
Export	Stable	Increasing	-	Increasing	-	-
Import	-	-	-	Increasing but at a higher pace than export	-	-
Structural changes	-	On-going, production is concentrated in the largest farms.	-	-	-	-
Future perspectives	Stable in the short run	Stable in the short run	Positive	Stable in the short run	Stable in the short run	-
National subsidies	Existing	Existing		Existing	Not existing	Not existing

Sources: DEIAGRA elaboration on local experts' reports

Table 3.8. Poultry industry trends in selected NMS countries

Elements	*Hungary*	*Latvia*	*Estonia*	*Czech Republic*	*Poland*	*Slovenia*
Number of laying hens	-	Decreasing	-	-	-	-
Poultry production	Decreasing	Increasing	Increasing	Stable	-	-
Total amount of eggs	-	Increasing	-	-	-	-
Producer prices	Decreasing	-	-	-	-	-
Production costs	Increasing		-	Increasing	-	-
Final price	Decreasing	-	Decreasing (due to competition)	Decreasing	Increasing	-
Import	Increasing	-	-	Increasing		-
Export	Decreasing	-	-	Increasing	Increasing	-
Domestic consumption	Increasing	-	-	Decreasing	-	-
Future perspectives	Negative due to structural problems	Positive	Positive	Negative (growing import and structural problems)	Stable in the short run	-
National subsidies	Existing			Not existing	Not existing	Existing

Sources: DEIAGRA elaboration on local experts' reports

4. Annex to Chapter 4

4.1. Operation of the SAPS

Given implementation scheme, single area payment scheme (SAPS) works according to the following mechanisms:

a. aid per hectare of surface at holding level;
b. increasing according to holding dimension (no compulsory modulation mechanism);
c. not linked to land uses (no obligation to produce anything or to produce at all);
d. no cross compliance mechanisms.

SAPS direct payment directly increases total gross farm revenue. It grows accordingly to holding dimension, being a constant amount per hectare, as described below:

$$GM = GFI - Kv + SAPS*surface$$

GM = gross margin
GFI = gross farm income
Kv = variable costs

In economic terms, SAPS can be indifferently considered as:

a) an extra income, adding to GM,
b) a reduction of the production cost. Fixed or variable costs could be affected .

In the first case: farmer would not apply any adaptation at the holding (e.g. exploiting extra funding to by more inputs). SAPS is then considered as a pure income sustain (**income effect**), used to pay factors actually in use at the holding. No production effect would take place, farmer would just get more opportunity to stay in the industry despite its level of efficiency.

In the second case, extra money can be used or invested in the holding (e.g. buying more inputs to increase production). Then a **production effect** may appear. Extra funding may also be used for fixed inputs in very large holdings, thus lowering financial barriers to access investment. In this case a *structural feed back* is likely to appear. Both cases can be described analytically by a variation of the production cost function (see Figure 4.1. and Figure 4.2.).

If this theoretical framework is applied at real holdings, it's easy to understand that farmers operating in marginal holdings are likely to adopt the first option. Being in a marginal situation, they will use extra income to increase their minimal revenue. No other solution is possible: given their economic position, by definition any production variation would definitively set them off the industries (production cost would be higher than gross income).

Farmers which do have economic margin, can opt for revenue or production effect. They can actually increase factors use to enhance production (and even revenue). This could translate in increased variable inputs use or in investments, according to holding's dimension. Largest holdings will in fact receive relevant amount of money. Table 4.1. shows extra funding amount for wide range of holding's size, varying from 5 to 1500 ha.
This amount should be compared with the average funding per project committed under SAPARD. Considering the 4 most relevant measures adopted under that programme (the

measures adopted by all of the 8 NMS), average funding per project is 76,588 € (ranking from 18,097 to 193,766). This means that for a 600-800 hectares holding of the amount received under SAPS is higher than the subvention potentially received under RD measures. For a 50 ha holding the amount is still relevant (4,000-7,000 €).

Table 4.1. SAPS amount per holding by holding size (2006)

	Poland	Czech Rep.	Hungary	Lithuania
*SAPS (€/ha)**	*148.5*	*88.9*	*115.055*	*128.55*
Holdings' size (ha)				
5	743	445	575	643
10	1,485	889	1,151	1,286
15	2,228	1,334	1,726	1,928
20	2,970	1,778	2,301	2,571
25	3,713	2,223	2,876	3,214
30	4,455	2,667	3,452	3,857
35	5,198	3,112	4,027	4,499
40	5,940	3,556	4,602	5,142
45	6,683	4,001	5,177	5,785
50	7,425	4,445	5,753	6,428
100	14,850	8,890	11,506	12,855
200	29,700	17,780	23,011	25,710
400	59,400	35,560	46,022	51,420
600	89,100	53,340	69,033	77,130
800	118,800	71,120	92,044	102,840
1000	148,500	88,900	115,055	128,550
1500	222,750	133,350	172,583	192,825

(*) EU + top up

Sources: DEIAGRA elaboration on national data and local experts' data

This calculation shows that for large, non-marginal holdings there is space enough to use SAPS for real investments. In this case a structural feed back is a very likely effect of the SAPS.

On the opposite, SAPS funding for small and very small holdings do not allow to overcome investment threshold. Income effect in those cases is the only one possibility, with no structural return. Considering that SAPS has no conditionality nor cross compliance (no obligation to produce), specially small farms can stop production and get money, still remaining in the industry (practising subsistence agriculture or no agriculture at all). Structural effect in this case does exist but is negative: farmers do not exit the industry, resources (specially land and labour) are locked in the industry and are not made available for alternative allocations. Revenue effect for these holdings is confirmed when minimum wage level is compared with SAPS level in the countries quoted in Table 4.1.

Depending on the Countries, SAPS direct aid for a 5 ha holding (EU + national top up) can reach more than a 3 months minimum wage equivalent. Data on agricultural revenue and PSE after 2004 empirically confirm that this effect is real (Table 4.2.).

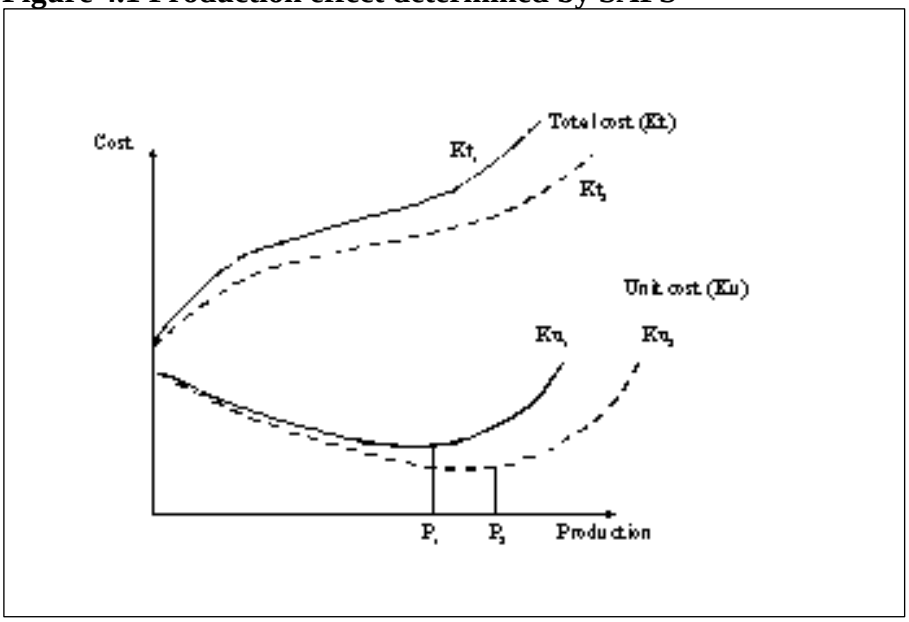
Table 4.2. SAPS wage equivalence for a 5 ha farm (minimum wage)

Country	*Minimum monthly wage (2006)*	*Total SAPS (5 ha farm)*	*SAPS wage equivalent (months)*
Czech Rep.	280.2	445	1.6
Lithuania	173.8	643	3.7
Hungary	-	575	-
Poland	223	743	3.3

Source: DEIAGRA elaboration on EUROSTAT data

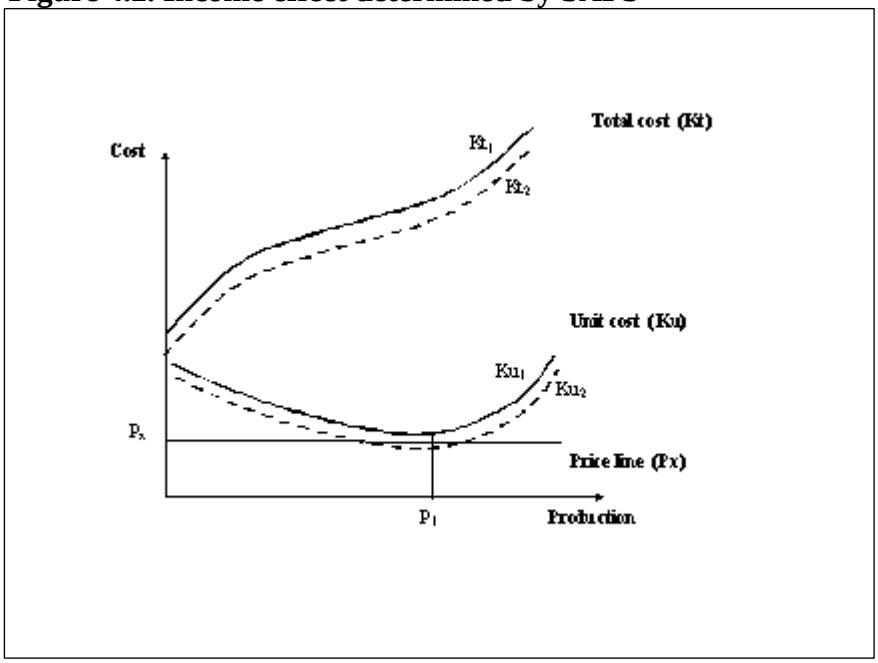
This evidence should be considered together with SAPARD and RD measures outcomes. National evaluation reports clearly show that in many countries small farmers have hardly reached rural development funding. Large scale holdings are in a quite different situation, as they are taking out the greatest advantage form RD funding. Considering point (c) above, SAPS has no effect to stimulate any kind of produce. In this view it's quite neutral.

Figure 4.1 Production effect determined by SAPS



Note: the effect of SAPS can be described as a reduction of the production cost function of the holding. In this case, for any production level, the total cost function reduces. The same happens for the unit cost, as shown in the figure above. optimal production level (corresponding to minimum unit cost) increases, shifting from P_1 toP_2. A relevant amount of SAPS (in the case of large holdings) could also be used to lower financial threshold to access investment. In that case, production cost function would expand to the right, with almost the same effect on production volume.
Source: DEIAGRA elaboration

Figure 4.2. Income effect determined by SAPS



Note: in marginal holdings (where unit cost equals selling price) and in extra-marginal holdings (where units cost is even higher than selling price) the farmers gets no profit (probably is not even able to fully pay its own work). In that case SAPS effect is mainly a income effect: farmers will use extra money provided by SAPS to increase very low income level. Total cost lowers. The same happens to unit cots which may equal price line. In this case, no production effect would take place.
Source: DEIAGRA elaboration

4.2. Rural development measures

Rural development (RD) measures implementation mechanism works in a different way. RD measures lower investment threshold for farmers and are conditioned to specific uses (farm investment, installation of young farmers, infrastructures, etc.). Considering farm level investments, RD lower investment related fixed cost (depreciation). Farm investments are innovations which allow getting new technology, modern production structures, land, etc.

This kind of investment directly change holdings' structure and generally have production feedback. In fact, increased fixed cost after investment obliges expanding production scale to achieve economic benefits in terms of reduced average production cost.

As we told in the former paragraph, especially large holdings have benefited from RD measures. The likely consequences of the *real* RD measures implementation mechanism is thus strengthening efficiency level of upper class size holdings. Question is whether this effect is the real target of the most implemented RD measures.

4.3. An integrated approach

Given the above developed analysis, putting together theoretical framework and empirical evidence, some conclusions can be drawn. We describe them according to holding typology (see Table 4.3.).

SAPS effect increases as holding dimension increases. Larger holdings are CAP measures real targets, because of the specific mechanism (like in SAPS case) and the real implementation outcome (like in RD measures case). Medium size holdings could benefit as well but at a very low level. Small farms will just get more means to survive.

This said the question whether this impact complies with agriculture modernisation or not. If this trend is confirmed on the long run, the likely scenario appearing in the long run is the affirmation of a production model which:

- strongly benefits (and accounts on) largest firms, which will receive the greatest amount of funding and will reach greatest productivity gain;
- provides small-medium farms surviving means, but at the same time provides poor development means (that is staying in the industry with increased productivity level); subsequently
- locks in the agricultural industry human and material (land) resources.

If we consider RD measures prevailing spending pattern in NMS, this scenario is likely to appear in the medium-to-long term. In this view a further consideration concerns the fact that real RD measures implementation mechanism do not allows small farmers reaching funds allocated to measures which could fit better to their problems (e.g. land reform and re-parcelling, farmers group formation , subsistence farming elimination). A conflict appears between CAP real implementation mechanism and policy declared objectives.

Table 4.3. SAPS and RD effects. Integrated approach

	Potential effect		*Likely global impact*
Type of holding	*SAPS*	*RD measures*	
Marginal holdings			
- small-medium farms	revenue effect	structural effect	very low impact at any level
- larger holdings	production effect structural feedback	structural effect	positive direct and indirect impact on structure and production lowered by holding marginality
Non-marginal holdings			
- small-medium farms	production effect	structural effect	low impact on structure and production
- larger holdings	production effect structural feedback	structural effect	High positive impact on structure and production, strengthened by SAPS structural feed back

Source: DEIAGRA elaboration