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Competiveness of the Baltic Agricultural and Food Sectors after Accession to the EU

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1 INTRODUCTION

The transformation from a socialist system into a market economy as well as the termination of the Soviet Union and the regain of independence has led to pronounced changes in the Baltic economy as a whole and the agricultural sector, in particular. The economies of all three Baltic states contracted substantially with the beginning of the transition through 1993. Lithuania showed an expansion since 1993, Estonia since 1995 and Latvia since 1996. In all three countries even a steadily increasing speed of growth could be observed during the last years. In the case of Estonia this amounted to more than doubling the growth rate from 4 % in 1996 to 9 % in 1997. Forces behind these upturns are manifold; mainly a tight monetary policy, the implementation of institutions necessary for an efficient market economy, the effective privatisation and restructuring of a substantial number of companies and the accompanying increase in competition.

Unemployment rates grew as the economies contracted but are considerably lower than those in most other Central and Eastern European countries. Inflation has substantially declined in all three Baltic countries during the last years. In 1997, only Estonia had still a two-digit rate (11.2 %) while it amounted to 8.4 % in Latvia and Lithuania. Due to the small size of all three countries trade is extremely important for each of them. Economic relations with the countries of the former Soviet Union are of less relevance now than they used to be. Nevertheless, the New Independent States (NIS) are still the most important destination for the Baltic countries´ agricultural exports while they have little relevance on the import side. Trade with Western countries, especially the EU increased significantly during the last years. The EU is the most important origin for agricultural imports of the Baltic countries. The trade balance with the EU is strongly negative for all three countries.

Agriculture and the food industry are still very important in these three countries. The share of agriculture in real GDP changed over the last years. It increased since 1994 in Lithuania reaching nearly 12 % in 1997 while it declined in Estonia and Latvia since the beginning of the 90s to 5.5 % and 6.9 %, respectively in 1997. Agriculture employes a higher share of the labor force than it has in GDP. It amounts to about 7 % in Estonia, 17 % in Latvia and 22 % in Lithuania. In addition, the food processing sector accounts for a rather high share in both GDP and employment; especially in Lithuania.

In addition to the internal transformation process, the recently ratified Europe Agreements with the EU require further adjustment in farming and in agricultural policies. Additional pressure for changes originates from external developments such as modifications in the Common Agricultural Policy (CAP) of the EU, implementing EU regulations as provided in the white book, from the Baltic Free Trade Agreement (BFTA) and the GATT/WTO agreement are to be expected.

As stated in the Europe Agreements an accession of the Baltic states into the EU is envisaged. In December 1997 the EU Council of Ministers decided to start negotiations for membership with the Czech Republic, Estonia, Hungary, Poland and Slovenia. Thus while Estonia will belong to those countries with which the EU will start accession negotiations in 1998, Latvia and Lithuania were not regarded to be capable of fulfilling the membership conditions in the medium term. Nevertheless, negotiations are expected to be initiated in the near future with these two countries.

Therefore, all Baltic countries must prepare themselves for EU membership to make the process of accession as smooth as possible. Due to their relative importance in these countries special emphasis is to be given to the agricultural and food sectors. Given the state of change in all three Baltic countries it seems difficult to obtain a clear understanding of the competitive position of the Baltic agricultural and food sectors. An assessment with regard to the competitiveness of agricultural and food products in those countries is essential for providing the necessary political support in order to smoothen the process of joining the EU as much as possible.

While research by major national and international institutions such as the European Commission (various country reports, EU, 1995), the OECD (e.g. OECD, 1995; 1996 Estonia; 1996 Latvia; 1996 Lithuania), the USDA (e.g. Shend, 1993; USDA, 1993, 1994, 1995) and the World Bank (e.g. 1994a, 1994b, 1995, 1997) has shed some light on the development of the agricultural and food sectors in the Baltic States, those studies contain little empirical analyses with regard to the competitive position of Estonia, Lithuania and Latvia in international markets as well as compared to the rest of the considered domestic economies. In general those studies also do not provide for a comparison of the competitive position of the Baltic countries. However, even more important, the competitiveness of the agricultural and food sectors of the Baltic States after an accession to the EU has not been investigated in any of these publications.

This study is an attempt to step into this breach. The objective is to analyse the present competitive position of the agricultural and food sectors in the Baltics and the expected development of this position following an accession to the EU. In order to realise this objective the study first provides a brief overview of the concept of competitiveness (chapter 2). Chapters 3, 4 and 5 cover the country studies for each of the Baltic countries, while a brief summary is given in Chapter 6.

Each of the country studies starts out identifying the main determinants of competitiveness and evaluating their significance for the respective agricultural and food sectors (e.g. subchapter 1). Based on this analysis the competitive position of the respective Baltic states as it is at present is discussed. Subchapter 2 elaborates on the likely development of this competitive position by discussing expected changes in the Baltic country with respect to the determinants of competitiveness. This more qualitative assessment of the competitive performance of the three Baltic countries at present and in the future is supplemented by ex-post and ex-ante quantitative analysis. The former is based on the calculation of production costs using farm level data and market share indicators using trade statistics. For the ex-ante analysis three scenarios are considered. They differ in the assumptions made with regard to the CAP at the time the Baltics are to join the EU. These scenarios are compared with the base or reference run in which it is assumed that these countries do not become EU members. For these ex-ante analyses an agricultural and food sector model was build for each of the Baltic countries.

2 CONCEPT OF COMPETITIVENESS

Competitiveness is an indicator of the ability to supply goods and services in the location and form and at the time they are sought by buyers, at prices that are as good as or better than those of other potential suppliers, while earning at least the opportunity cost of returns on resources employed (FREEBAIRN 1986, p. 2).[1] Two types of competition are included in this definition. First, the competition on domestic and international product markets and thus the ability to gain and maintain market shares, and second, the competition in factor markets, where those factors employed in producing the goods have to earn at least the opportunity costs. Although pointing to different aspects, both types are indicative of the fact that competitiveness is a relative measure. One always has to make the comparison with a base value. In the case of a market share, it is with regard to market size. If one assesses competitiveness in factor markets, the relation is to the value a factor would have in another production process.

Analyses of competitiveness may differ with respect to the level of investigation. Table 2.1 provides an overview. Studies can be carried out for various levels of product aggregation, across the entire economy, a specific sector, or for a single product (or aggregate of products). The competitiveness of a product can be assessed at market (sector) level or for a specific farm. Another differentiation of competitiveness exists with regard to the spatial dimension of the analysis. Since it is a relative measure, the competitiveness of enterprises or regions within a country, or between countries, may be compared.

The indicator used does not always reveal the spatial extension and the level of product aggregation of a given analysis. A large number of analyses of competitiveness evaluate the performance of an industry (or a sector) either by using an aggregate of all the outputs of this industry, or by looking at its most important commodities. On the other hand, studies at the enterprise level are becoming increasingly common as well.

Table 2.1: Analyses of Competitiveness According to Level of Product Aggregation and Spatial Extension

	Spatial Extension		
Product Aggregation	Farms	Regions Within a Country	Countries
Entire Economy	no	no	yes
Single Industry	no	yes	yes
Single Commodity	yes	yes	yes

Competitiveness is closely linked to comparative advantage. The only difference between the two is that competitiveness includes market distortions, whereas comparative advantage does not. Both are based on the concept of general equilibrium. Therefore, indicators employed to measure

[1] There is in fact no single definition of competitiveness in the economic literature. The difficulties in defining competitiveness are due to the various dimensions of this concept. The above definition, however, seems to be widely accepted in the economic literature. Its main advantage lies in that it not only considers the output markets, but also considers the factors of production.

competitiveness should ideally make use of general equilibrium approaches, since only these take account of all the interdependencies in an economy.

Although such analyses are desirable, they are not too frequently pursued because of the complexity involved. Studies that investigate only one part of the economy, e.g. an industry or an enterprise, and that approximate or neglect these interdependencies, are more common.

As mentioned above, the concept of competitiveness can be applied at different levels of product aggregation and spatial extension. In addition, past performance (ex-post) or the potential of competitiveness (ex-ante) can be the focus of the analysis. In this study, indicators of competitive performance in the past are discussed as well as measures which can assess both past performance and future potential.[2]

The quality of the results obtained with these indicators depends to a considerable extent on the quality of the data available. Although this is common to all indexes, it affects some more than others. The quality, type and amount of data required also varies between the measures; the choice of the index to be employed is therefore often dictated by data availability.

Several approaches can be used to analyze the past performance of competitiveness. Most frequently employed are market share indicators, the real exchange rate and Foreign Direct Investment (FDI). They differ widely in their methodologies and data requirements. Some of these indicators might also be used to assess the impact on competitiveness of new policies that do not deviate too strongly from those in place in the past. However, quite a few analyses of the impact induced by policy alterations such as the accession of the Baltics to the EU focus on events for which past observations offer little if any insight, because the new instruments are outside the domain of what has been observed. Hence, one needs to assess these impacts using methods capable of capturing the effects of such options.

It is not important in this respect whether these events will actually occur, but nevertheless one rather likes to assess the potential impact the implementation of such policies would have. The ex-post indicators mentioned above cannot be expected to deliver results of the quality desired. Accounting methods such as production costs and gross margins (profitability), and domestic resource costs can fulfil this task to some extent. However, mathematical or simulation models are capable of providing the most comprehensive insight.

In the empirical part (subsection 3) of each country study ex-post and ex-ante indicators are used to gain insight into the competitive position of the agricultural and food sector of the Baltics at present and in the future.

[2] For an overview on measures of competitive potential and competitive process, see PORTER (1990) or FANFANI et al. (1995).

3 STUDY ON ESTONIA

3.1 Determinants of Competitiveness: Porter Diagram

By examining the agricultural and food sector in the Estonia with respect to Porters four determinants as well as to the variable government the functioning of the diamond with respect to this sector will be discussed in the following sections.

3.1.1 Current Situation

Estonia is situated in north-eastern Europe, to the south of the Gulf of Finland between 56 and 60 parallels, with total area 45226 square kilometres, 350 km from west to east and 240 km from north to south. The total length of coastline is over 3 800 kilometres. Geologically Estonia is situated on the level north-western part of the East European platform, on which there are only slight variations in elevation. Estonia is mostly flat and the average height above the sea level is 50 m. The highest point is 318 m above sea level. There are over 1 500 islands covering an area of 4 133 square kilometres in Estonia, as well as lakes totalling 2 015 square kilometres.

With regard to zonal distribution of vegetation, Estonia belongs to the northern part of the mixed forest zone. Forest covers approximately 40 per cent of Estonia. Forest resources play an important role in the Estonian economy.

At the beginning of 1995, Estonia had a population of 1.492 million. Population growth over the last 100 years has been relatively slow. In the socialist period, net migration to the Estonian Republic from other parts of the Soviet Union was rapid. Ethnic minorities, especially Russians, account for more than 35 per cent of the population. The proportion of the population living in towns and cities has increased from about one-third in 1940 to over 70 per cent now. The urban population is concentrated in the capital Tallinn.

Administratively, Estonia is divided into 15 counties and 7 cities (a further 27 towns are subordinated to the counties). The largest towns are Tallinn (1995 population: 434 763), Tartu (104 907), Narva (77 770), Kohtla-Järve (55 415), Pärnu (51 526), Sillamäe (19 804) and Rakvere (18 442). The counties are divided into communes.

Table 3.1: Macroeconomic indicators for the years 1993 to 1997

Indicator	Unit of Measurement	1993	1994	1995	1996	1997
Population	1000	1 528	1 507	1 491	1 476	1 462
- of which rural	%	29.4	29.7	30.0	30.2	30.6
- density	head/km^2	33.8	33.3	32.9	32.5	32.3
Total area	1000 ha	4 523	4 523	4 523	4 523	4 523
- agricultural land	1000 ha	1 454	1 450	1 450	1 450	1 450
- forestry	1000 ha	2 022	2 017	2 016	2 016	2 016
GDP						
- current prices	mill. EEK	22 060	30 103	41 503	52 379	
- change	%	-8.5	-1.8	4.3	4.0	
- in PPS[1)] per head	ECU	3 509	3 593	3 917		
Share in total GDP	%	100.0	100.0	100.0	100.0	
- agriculture	%	9.3	8.2	6.2	5.5	
- fishing	%	0.6	0.6	0.5	0.5	
- forestry	%	1.1	1.4	1.5	1.3	
- industry	%	31.1	30.5	28.7	27.6	
- services	%	57.9	59.3	63.2	65.1	
Monthly wage						
- average	EEK	1 066	1 734	2 375	2 985	
- agriculture	EEK	641	1 010	1 405	1 811	

[1)] PPS refers to Purchasing Power Parity

Sources: Commission PECO-database, Bank of Estonia and Statistical Office of Estonia.

Since independence, Estonia has placed considerable emphasis on regional development. Regional policy is still under discussion. Rural development policy is at a very early stage of formulation and still regarded as an aspect of regional policy.

In 1989, a Department for Regional Development was formed within the Ministry of Economy to handle the allocation of state funds. In 1991, a framework for regional policy was completed, which included tax concessions for new businesses established in less developed regions. Plans for differentiating investment loans by region were initiated but not implemented because of the high inflation rate at the time.

In 1993, a Regional Development and Local Government Board was formed within the Ministry of Internal Affairs. In co-operation with the Regional Policy Office of the Ministry of Economy and the Department of Regional Development in the Ministry of Agriculture, it formulated a new regional policy approach. Approved by the government in December 1993, this approach was

designed to establish joint mechanisms for regional policy on the basis of existing structures, means and resources.

Two new institutions were created - the State Council of Regional Policy and the Regional Development Fund. The State Council of Regional Policy consists of people working in state institutions and local governments with responsibility for formulating and co-ordinating regional policy. The Regional Development Fund is designed to facilitate access to credit and improve credit conditions, especially in less-developed regions (defined as those suffering from depopulation, a high level of unemployment and a low standard of living). Some preference is also given to islands and border areas. Estonian Hoiupank in the south-east of the country is one institution that provides development loans, which are partly guaranteed by the state.

Estonia has been observer of GATT since 1992, and requested accession in March 1994. Her application to become a member of WTO is currently being examined. Estonia has 9 different free trade agreements. The free trade agreement with EU came into force on January 1, 1995.

Up to 1990 the Estonian economy increased slowly, but transition from centrally planned economy to market economy led at first stage to significant decrease in GDP. In 1992, the real change in GDP was -22 %. Since then significant progress has been made in macroeconomic stabilisation. In 1993 the decline slowed to -8.5 % and in 1994 to -1.8 %. The year 1995 was the first year of continuous growth with a real growth of 4.3 %. In 1996 the growth maintained at 4.0 %.

3.1.2 Factor Condition

Land

About 1.4 million hectares, i.e. 30 per cent of total Estonia's area, is agricultural land, of which about 1.1 million hectares are arable (see Table 3.1). Of the arable land, 50 per cent is used for fodder crops and about 40 per cent for cereals (with barley, primarily for use as livestock feed). Potatoes and rye are also important crops in Estonia. About 60 per cent of the land is drained.

Besides the quantity also the quality of land determines the locational advantage of a country. In Estonia the quality of the land as well as the climate conditions for intensive agriculture are not very favourable. The average annual temperature is 4-6 °C ranging from +19 °C in summer to -8 °C in winter. The average annual precipitation is 550-560 millimetres ranging from 500 mm on the coast to almost 700 mm in the uplands. The length of the growing season (vegetation period) lasts 165-185 days, which is about the same or little longer than that in Southern Finland.

With the "Law of the Principles of Property Reform" of 13 June, 1991 and the "Estonian Land Reform Law" of 17 October, 1991 private property on land has been re-established. The laws stipulate that land shall be returned to their previous owners or that the latter shall receive compensation. Owners of land may sell or rent it. In reality, however, the procedure of restituting land is quite complicated. As a result land reform proceedes rather slowly. As of January 1, 1998 only about 25.5 % of the agricultural land was registered in the cadastre and received a title (see Table 3.2). Taking into consideration the low demand for land at present, significant part of land are still the property of the state. Local communities have the right to sell this land or rent on short term; i.e. up to 1 year contracts.

The undevelopped land market has a negativ impact on the competitiveness of the Estonina agricultural sector, since the creation of economically viable units and the redistribution of land to those who can use it more efficiently is impeded.

Table 3.2: Status of land reform in Estonia, as of January 1, 1998.

Characteristic of the land	Land claimed 25.8 % of total land		Land not claimed 74.2 % of total land
	restituted 530000 ha or 20,7 %	to be restituted 130 000 ha or 5.1 %	of which for privatisation 1 722 000 ha or 67.5 %
Land owned or used by	land with title 20,7 % former land owners and heirs	land without title 5,1 % (to be restituted in future)	limited liability companies, holdings etc. (mainly land users not the owners yet)
Fixed assets	landowners generally own the fixed assets	generally without the fixed assets	fixed assets acquired by labour shares
Land use objectives	agriculture and other activities	usally to sell or rent the land	agriculture and other activities
Motivation for farming	moderate to high	usally low	1/3 of farms moderate motivation 1/3 of farms low motivation 1/3 of farms lost motivation
Type of support required	extension, financial support	not known	excessive amount of labour; financial support for upgrading technology

Labour

Major changes in employment took place over the period 1992-1994. Before independence the employment share of primary sector was approximately 20 % (see Table 3.3). By 1996, the primary sector employed not more than under 7. The significance of primary sector as employer is although still very remarkable in counties of Jõgeva (25 %), Järva (22 %) and Põlva (15 %).

Table 3.3: Share of employment: in the most important sectors including agriculture, fishery and forestry over the years 1992 to 1996, in %

	1992	1993	1994	1995	1996
Processing industry	25.8 %	24.6 %	24.2 %	23.9 %	22.5 %
Construction, transport, inventory management and communication	15.8 %	15.4 %	16.1 %	16.3 %	14.5 %
Wholesale and retail trade	7.9 %	11.4 %	10.3 %	11.5 %	13.2 %
Agriculture, fishery and forestry	16.5 %	10.7 %	9.0 %	7.4 %	6.8 %

Source: Bank of Estonia

Table 3.4 provides some insight into rural employment. As in all transition countries the employment rate is rather high in rural areas although total employment declines sharply (by more than 25 % in 1996 compared to 1990). For the population in working age it is nearly 100 % at the beginning of the transition period and falls below 90 % in 1996. Unemployment rises over time rather strongly. All these figures indicate that the rural economy does not grow fast enough to secure jobs for all persons who want to work.

As mentioned employment in agriculture declines also strongly. This holds for the absolute numbers as well as for the the share in rural employment. However, the latter does not decline as strongly as the share in total employment because the work force shrinks more in rural areas than in urban ones.

Table 3.4: Rural population of age 19 to 69 and employment

	1989	1990	1991	1992	1993	1994	1995	1996
Population aged between 15 to 65 (in 1000)	247.6	244.1	240.2	233.2	222.2	218.6	198.7	198.1
employed persons (in 1000)	246.0	243.0	237.3	226.3	207.5	201.1	177.5	176.2
(in % *of population)*	*99.3*	*99.5*	*98.8*	*97.0*	*93.4*	*92.0*	*89.3*	*88.9*
unemployed persons (in 1000)	…	…	2,9	6,9	14,7	17,6	21,2	21,9
(in % *of employment*	…	…	*1.2*	*3.0*	*7.1*	*8.6*	*11.9*	*12.4*
employed in agricul-ture,forestry, hunting (in 1000)	150,8	148,5	140,5	124,7	101,5	87,5	63,0	59,7
(in % *of employed*)	*61.2*	*60.8*	*58.5*	*53.5*	*45.7*	*43.5*	*35.5*	*33.9*

Wages in agriculture are among the lowest in Estonia (see Table 3.5). As a result total labour costs are low, which is beneficial for agriculture. But it should not be overlooked that due to

outdated technology used in the agro-food sector and lack of management skills and market orientation labour productivity can be expected to be in general inferior to the one in the EU.

Table 3.5: Monthly gross wages or salaries as average over the 1st quarter of the year by economic activity, in Estonian Kroon (EEK)

Economic activity	Average gross wages per month			
	1994	1995	1996	1997
Agriculture and hunting	741	1 146	1 476	1 714
Forestry	1 303	1 976	2 255	2 869
Fishing	1 414	1 648	2 462	3 190
Mining	2 107	2 768	3 545	4 204
Manufacturing	1 429	2 138	2 678	3 168
Energy, gas and water supply	1 931	2 804	3 415	4 112
Construction	1 566	2 202	2 727	3 213
Wholesale and retail	1 243	1 783	2 331	2 679
Hotels and restaurants	967	1 312	1 728	1 936
Transport, storage and communications	2 095	2 734	3 369	3 865
Financial intermediation	3 043	4 509	5 713	7 065
Real estate, renting and business activities	1 356	2 384	2 851	3 662
Public administration and defence	1 614	2 434	3 161	3 759
Education	1 042	1 763	2 227	2 558
Health and social work	1 207	1 681	2 455	2 819
Other community, social and personal service	1 005	1 697	2 325	2 674
Average over all economic activities	1 410	2 086	2 649	3 136

Capital

The general lack of capital and the reluctance of the banking sector to advance credits to agriculture is an important impediment to the improvement of the competitiveness of the Estonian agriculture. A major reason for this is the lack of a well-functioning land market that would enable farmers to provide land as a colleteral for bank loans. In order to solve this problem, the government set up several specialized funds to provide cheap credits and grants to agriculture and also to other rural activities. An overview of the budgetary outlays for agriculture in 1997 and 1998 is provided in Table 3.6. In 1997, the largest share (approximately 36 %) went into investments through the Agriculture and Rural Life Fund while nearly 20 % was paid for providing services and the same percentage for granting reductions in excise tax for diesel fuel. In 1998, a substantial shift in relative and absolute outlays is to be expected. Support of

investments will decline relatively to 15 % of the agricultural budget and in absolute terms from 97 to 72 mill. EEK while the lion share is going to be paid as direct support to grain and milk producers.

Table 3.6: Budgetary allocations for agriculture and for supporting rural life in 1996 and 1997, in mill. EEK

	1997	1998 (expected)
Education and advisory service for producers	7.0	7.0
Services bought by the state, total	51.6	65.5
of that: - liming of soils	4.4	14.4
- melioration	8.5	8.7
- research programmes	19.6	19.0
- support for pedigree breeding	12.2	12.2
Support to farming	5.0	4.2
Agricultural chamber of commerce	2.7	2.0
Investments, total	29.2	30.2
of that: - melioration	15.5	16.8
- construction of electric lines	11.0	11.0
To Agriculture and Rural Life Credit Fund	97.0	72.0
of that: - reducing interests on loan	20.0	20.0
- capital support(support of investments)	20.0	52.0
- for increasing loan resources	57.0	-
Programmes of regional development	25.0	30.0
Direct support to grain growers and milk producers	-	190.0
Reduction of excise tax on diesel fuel	52.0	60.0
Everything in all from the budget:	269.5	460.9
of that: - as direct subsidies,	55.3	190,0
- as reduction of excise tax,	52.0	60.0

In the recommendations of the World Bank, it was suggested that, with an approximate volume of investments of 700 mill. EEK, the total sum of investment support beginning in 1998 should be around 150 mill. EEK. It was noted that it is necessary to begin immediately the compilation of a relevant bill to regulate the bases and procedure for granting such support. In line with recommendations of the World Bank investment support will be based on the follwing principles:

- Capital support is awarded if it helps a business project to be operated better; support will not be given simply to save a farm from bankruptcy.
- Support is dependent on the borrower's own initiative, i.e. those who have been prepared to take the risk of taking a loan, and putting their own effort and resources into the project, will be more likely to receive support.
- During the duration of this programme, loan repayment capabilities can be improved by offering reduced interest rates (for loans for capital investments only).
- Under regional development principles, also used in the EU's Structural Fund, the regional location of the loan project will be taken into consideration when reducing interest rates.
- Initial support could be given to young families just making a start in farming.
- Payments will be made on capital support once a year, in view of the cycle of agricultural production and income.

3.1.3 Firm strategy, structure and rivalry

Also the determinant firm strategy, structure and rivalry encompasses positive as well as negative effects for the competitiveness of Estonian agriculture and the food industry. As can be seen in Table 3.7. today household plots and family farms play the dominant role in agricultural landholdings. Often the difference between a household plot and a family farm (private farm) simply is a legal question; the latter have full (fee simple) title to their land, whereas the former do not.

Table 3.7 The status of agricultural land holdings as of January, 1996

Type of farm	No. of farms	Arable land cultivated	Share of total arable land	GAO[1)]	Share of total GAO in 1995
		in ha	in %	in 1000 EEK	in %
Household plots	45.000*	193.782	22.2	1,951,950	34.0
Family farms**	19.767	261.022	29.9	1,007,658	17.6
Statutory enterprises	925	419.168	48.0	2,778,828	48.4
Total	65.692	873.972	100.0	5,738,436	100.0

[1)] Gross Agricultural Output

* Approximate estimate.

** These farms are called "private farms" in some classifications, although all farms are private now. They are distinguished from the enterprises in that they are owned by a single family, and from the household plots by virtue of being larger. Family farms averaged about 20 hectares in size in 1996. All of the restituted land falls in this category; it is anticipated that the number of family farms will increase at the expense of both enterprises and household plots, as the remaining claims are processed.

In addition to the area recorded in the table above, at the end of 1995 the State was responsible for 226371 ha of unused farm land which is not claimed by anybody. There is an increasing trend toward abandoning land since the beginning of the 1990s. This phenomenon has a regional dimension, being much more pronounced in the south eastern part of the country than elsewhere. Hence the search for appropriate ways to privatize this land is an important policy issue.

Large-scale forms of agricultural production survived the transition to a new economic regime. All of the 117 state and 212 collective farms in operation in 1990 have been restructured into 2 864 large farms organised as co-operative or shareholding enterprises. The number of these enterprises increased at the outset of the reforms, because of splitting of some of them into smaller units, but then they began to decrease, owing to mergers and some bankruptcies. Dominating enterprise types are limited liability companies, which have 35 % of workers, 32 % turnover and 34 % fixed assets, joint-stock companies which have 23 % of workers. 30 % turnover and 29 % fixed assets and co-operatives which have 30 % of workers, 24 % turnover and 25 % fixed assets.

Relative to the arable land they use the share of large scale farms (statutory enterprises) in total production especially that of crops is remarkably low, as shown in Table 3.8. However, they still own about 62 % of the breeding cattle. They have received little assistance in choosing their organizational forms, in management skills, and in ways to form service cooperatives to provide essential services that formerly were offered by the state and collective farms. Furthermore, as

commented below, they have disadvantages because of not being the owners of the land that their buildings and other farm structures sit on, nor of the land they till.

Table 3.8 The number of agricultural enterprises and average size of family farms, in ha

	1991	1992	1993	1994	1995	1996
Statutory enterprises, number	340	396	586	1013	983	873
Family farms	2339	7029	8412	10153	13513	19767
Family farm size, in ha	26.6	25.1	25.4	24.8	23.1	20.8

It is not expected that there will be many new farm founders from towns. The main population group with the potential for increasing the number of farms is the present grouping known as holders of household plots. As pointed out above, in fact the main difference between "family farms" and household plots often resides in their legal status, i.e., whether or not they are owners of the land they work. This has put holders of household plots at a considerable economic disadvantage and is and issue our land reform process has to solve, so that a considerable number of subsistence farms can change the legal status of their farm.

If this possibility is offered to them, several consequences can be expected to occur: a) these farms may become even more productive than they currently are, although they are now the most productive group of farms per ha in the country; b) some of them may sell their land to more successful holders of household plots, or to other investors, so that gradually larger farms will emerge; c) their average income, which now is quite low, could rise because of the development possibilities offered by tenure security; and d) those who decide to sell their land and seek a job elsewhere will be endowed with a small amount of capital they can use to improve their standard of living.

Another striking feature of the adjustments taking place in agriculture is that the smallest groups of family farms have increased most in number over the past years. Number of farms with less than 5 hectares of land rose most, followed by those with 5 to 10 ha and those with 10 - 20 ha (see Tables 3.9 and 3.10).

Table 3.9: Number of family farms in Estonia

Farm size (hectares)	1991	1993	1994	1995	1996	1997
up to 5 ha	164	659	818	1 634	3 490	2 901
5.1 - 10.0 ha	244	1 040	1 298	1 827	2 898	3 644
10.1 - 20.0 ha	581	2 269	2 823	3 750	5 272	6 364
20.1 - 30.0 ha	539	1 804	2 191	2 721	3 574	4 299
30.1 - 50.0 ha	581	1 811	2 090	2 488	3 175	3 800
50.1 - 100.0 ha	213	784	879	1 027	1 273	1 574
over 100.1 ha	17	45	54	66	85	140
Total	2 339	8 412	10 153	13 513	19 767	22 722

The main reason for this trend is the nature of the land reform process itself, according to which farm land is restituted strictly within their former borders and size. At the same time, the unfavorable economic conditions in agriculture of recent years have not encouraged farmers to increase their holdings.

Another reason is that the land reform policy has not been concerned with supporting the transformation of former state and collective farms into viable private (shareholding) companies. While small farms exist in all countries where they efficiently maily labor intensive crops like fruits, vegetables and other specialty crops production of grains, milk and beef generally requires larger units to be viable. To strengthen the competitiveness of large scale enterprises it is very important to renew machinery and farm equipment and reduce labour costs.

Table 3.10: Number of farms, total arable and average farms size by various farm groups based on arable land

Farm groups	No. of enterprises	Arable land (ha)	
		total	per enterprise
Up to 50 ha	53	1 000	19
51 - 100 ha	33	2 534	77
101 - 25 ha	94	16 237	173
251 - 500 ha	129	47 282	367
501 - 750 ha	111	67 541	609
750 - 1000 ha	65	57 453	884
1001 - 1500 ha	52	62 741	1 207
1501 - 2000 ha	25	42 749	1 710
over 2001ha	26	79 298	3 050
Total	588	376 835	641

Policies for adjusting farms and for land reform should be integrated and not separated as currently. This would make both become more efficient. Without title to their land, it is hard to expect farms to attract the kind of investments that are necessary to become more efficient and competitive in international markets. Another indication of this gap in policy is the lack of programmes oriented toward assisting the new enterprises to learn the appropriate techniques of enterprise management and marketing, and to help both enterprises and farmers in the formation of agricultural service cooperatives where needed.

A decree to accelerate the agrarian reform process was passed in September 1992 entiteling private farmers to get land for period limited to three years. It also had a provision that all state and collective farms were to be privatised or liquidated. Generally, the reform was carried out in the following steps:

– formation of a "reform commission" for each state and collective farm. These commissions were made up of three private farmers, three members of the managing staff of the unit to be privatised, three representatives of the local community and one member trained in law

representing the state. An inventory of the property had to be made and a valuation according to regulations determined by law. All these details of privatisation were proposed in a reform plan elaborated by the reform commission and were subject to approval of the general meeting of staff and former owners;

- buildings and facilities not connected directly to agricultural production went to the state or to the newly formed community. This includes blocks of flats, schools, kindergartens, buildings units, central heating plant etc.;
- individual houses are sold to person who lived in it;
- persons who want to start their own farm (mostly former owners or their inheritances) received land, cattle and partly building and machinery. If the demands of these person could not be fulfil they are promised money to be paid in the future or shares of remaining large farm;
- former owners or their successors who are not able or willing to cultivate their land, received some land and made informal renting arrangement with other farmers or with the remaining "Share-holding company";
- separate production units such as green houses, saw mill, carpentry and workshops with petrol stations are privatised and work on their own. Privatisation means only in very few cases that a individual person started as entrepreneur but usually the employees of the special unit formed a co-operative or "Share holding company";
- the remaining land and buildings went to several individual enterprises, joint-stock companies, etc. There are about up to 17 different companies in one former large-scale farm.

Most of the large-scale enterprises are not doing well economically. Due to uncertainty about the future course of land reform, internal management, worker morale, and their own prospects for commercial viability given market conditions, there has more often been a deterioration in productivity. These farms have generally not undertaken new investment, and even existing assets have not been well maintained. Many farm enterprises have not been able to pay salaries, which has resulted in livestock and machinery being sold to raise funds. Government efforts aimed at maintaining employment and preventing a crisis in agriculture by supporting these descendants of the state and collective farms have often had the effect of delaying necessary restructuring.

To summarize, one of the major structural defficiency having quite some negative impact on competitiveness of Estonian agricultue is the lack of a well-functioning land market. It prevents smaller production units from becoming larger and thus be able to utilize economies of scale. The restructuring process of the large scale farms is hampered by not being owners of the land that their buidlings and other farm assets are on, and of the land they till. Without title to their land, it is hard to expect farms to attract the kind of investments that are necessary to become more efficient and competitive in international markets.

Competitiveness requires not only to produce at low costs, but also the willingness to explore and expand product varieties and to secure a high quality standard. There is still a lack of appropriate management and marketing skills influencing the competitive position of the Estonian agricultural and food sector negatively compared to the ones in Western Europe.

3.1.4 Demand

Considering the demand conditions in Estonia, a negative influence on the competitiveness of the agricultural and food sector has to be stated. This is due to two reasons. First the purchasing power of the Estonian consumer markets is relatively small and thus the quantity of products that can be sold on the domestic markets. In 1992, food prices rose sharply and the supply of food increased. As the incomes did not rise as much as the prices, the consumers suffered a loss of purchasing power. Consequently, per capita consumption of many food products dropped. This development reverted in the following years and the per capita consumption of most products began to recover (see Table 3.11). This is also due to the fact that the per capita income increased more than the price index of food and the share of food expenditure on total household expenditure decreased from 46 % in 1993 to 35 % in 1995. Nevertheless, in 1995 per capita food consumption of some products, especially of meat, fruits and milk products, is much lower than in Finland and the Estonians consume 20-25 % less energy and protein per capita than the people in developed Western economies. It should be noted, however, that based on the country's real income, which was only about half the OECD average, consumption of many livestock products in Soviet times would have been much lower, if huge state subsidies had not maintained the artificially high level of consumption. So the change in the structure of food demand - a decresing demand for goods with high income elasticity and incresing demand for foods with low income elasticity - is an inevitable and market-conform adaption of consumption pattern to real income.

Table 3.11 provides an incomplete picture of food demand in Estonia because it does not contain consumption from subsistence production at household level which needs to be added. This is especially important with respect to potatoes, vegetables and fruits and to a lesser extent for meat and eggs. Though the urban consumers produce some food in so called garden co-operatives, they consume distinctively less cereals, potatoes and meat than the rural consumers.

Table 3.11: Development of food consumption in Estonia, in kg per inhabitant

	1992	1993	1994	1995
Cereals	84.0	78.5	82.3	85.7
Potatoes	76.8	106.1	100.6	100.0
Sugar	17.8	21.0	22.5	23.2
Vegetables	57.7	56.1	60.7	64.5
Fruits	34.2	52.1	41.2	54.2
Meat	44.2	40.1	37.4	42.7
Eggs	10.6	11.0	10.7	12.4
Fish	11.9	14.8	14.7	13.8
Milk (without butter)	190.3	189.0	187.8	184.5
Oils and fats	9.9	10.9	12.4	12.8

The Baltic Free Trade Agreement signed by Estonia, Latvia, and Lithuania will enlarge the markets for the respective firms. Thus, it should be possible to reduce the quantity constraint and better utilize economies of scale in the future.

The quality of demand is the second reason negatively influencing the competitiveness of the Estionian agro-food secor. Compared to West European countries, consumers in Estonia are still

less sophisticated. The demand for high quality, a greater variety and healthier products can be expected to rise only with growing income.

3.1.5 Up- and downstream sectors

The determinant „Related Industries“ for the agricultural sector comprises the agricultural input industry as well as the food industry and the food retail sector.

3.1.5.1 Upstream sector

The former agricultural upstream sector was dominated by the state organisation “Agro technology” (EPT), which had 27 subsidiary smaller state enterprises located in every county. The privatisation process started in 1991 and was completed in 1995. As a result of restructuring, there are now some 120 upstream manufacturers, of which about 20 are relatively large. They mostly produce for the domestic market and only about 5 per cent of their output is exported, mainly to Finland, Sweden and Norway.

The structure of service units existing under the socialist regime was changed and many small companies resulted from this process. Private family farmers often still depend on services provided by co-operatives.There has also been a growing trend towards specialisation and diversification in the service sector. Today services are provided in field such as of marketing, management and the purchsse of inputs. Traders have shown they are able to purchase inputs and machinery from traditional trading partners in the FSU, sometimes through triangular barter arrangements with partners abroad. Estonian farmers can now acquire machinery and variable inputs from different suppliers offering products of both Eastern and Western origin. Eastern products are still significantly cheaper and thus preferred by the farmers.

3.1.5.2 Food processing

Since agricultural processing was carried out by large scale plants that did not face any competition from other firms in the same geographic area under the centrally planned system , the large scale remains of the old system initially had monopsonistic power vis-a-vis the farmers in the same region. As a result, farmers were forced to sell their products to the local processing plants at low prices and often with delayed payments. The lack of competition throughout the sector at the beginning of the economic reform was a major factor in the unfavourable price relations for outputs and inputs at the farm level. However, since then competition has become stringer, for many small scale orivate processors have emerged. They compete with the large-scale enterprises for the farmers’ raw material and the consumers’ limited purchasing power.

One of the most important subsectors of the Estonian food industry is the dairy industry. Under the command economy, there was a concentration of activity in the large scale agri-processing facilities. Milk processing is now done at 38 dairy plants, compared to 311 plants in 1965, and 853 plants in 1994 when the sector was organised based on family farms and extensive use of co-operatives for processing and marketing.

The dairy processing facilities are generally in better shape than other sectors of agri-processing. Nevertheless, only 18 of the 38 plants in dairy sector visited in spring of 1993 by the European Union team were judged to be in adequate or good condition. Much of equipment is not up to modern standards. Operating costs are generally high due to inefficient energy use. Improvements in energy efficiency are particularly important due to elimination of cheap oil imports from Russia.

Presently, there are three state owned and eight private dairies companies. Two of the latter are also meat packing enterprises. These eight private companies have a total of 22 dairy plants and manufacture the entire range of dairy products. A considerable proportion of the large scale processing facilities are technically outdated, waste energy and do not meet hygienic standards. At present, the performance of the state owned companies is in general not very promising, as management system has not changed and the production capacity was not adjusted according to the quantities available for manufacturing. Oversized and expensive production equipment is costly to run.

Performance of the privately owned companies is more promising. These firms include co-operatives which are open for milk suppliers and are based on the idea of "one member, one vote" and also share-holding companies with usually only a few big farmers who are the owners. In most cases, the land, buildings, and equipment are still owned by the state and rented by these companies, occasionally at no cost. In a few cases, the facilities are rented by private companies. Those small dairies which are still owned by the state may eventually be taken over as co-operatives.

In the meat industry all of the large-scale processing plants remain state owned, although they are now independently operated in competition with each other. Out of the 12 large-scale slaughterhouses and meat factories, only the new plants are up to modern production and hygiene standards. While there are prospects for bringing these latter plants up to European Union and United State standards, costly investments will be required to do so. For all the other plants visited by the European Union team, the standards of hygiene, machinery, and buildings was generally found to be poor, very poor, or intolerable.

The privatisation of grain industry enterprises came to an end in 1996, when RAS Viljandi Viljasalv (Viljandi Grain Bin Plc) was the last to be privatised. During the process of reforms, the feed mills of the State or collective farms were also privatised. Large mills and concentrated feed plants prepare flour products for the foodstuff industry and retail sales, produce animal feed and are purchasers, processors and storers of grain.

Today the large mills and concentrated feed plants no longer find themselves with a monopoly. There are over 50 grain mills in rural areas, of which a large number have contemporary equipment bought from Denmark. These are able to supply commerce and bakeries with quality grain products. AS Sangaste Linnas (Sangaste Malt Ltd) is the first German-Finnish grain processing enterprise. The newest high-technology equipment is used in the mill, which produces flakes from grain. Nevertheless as in other subsectors of the food industry obsolete equipment that impairs efficiency and the quality of output remains a major problem even in the grain sector. Considerable investment will be necessary. New enterprises producing animal feed have also been set up.

Another problem contributing to the low economic performance of the food industry are severe overcapacities. Alone in the mill industry the production capacity utilized in mills was in 1995 15.6 % and in feed plants 14.6 %.

3.1.5.3 Retail sector

Between 1991 and 1993, the domestic trading system in Estonia was completely overhauled, both as regards its ownership structure and the range of products traded. By January 1995, privatisation and the growth of new retail enterprises had reduced the share of state-owned

enterprises in total retail turnover to only 5 per cent and that of municipal enterprises to just 1.8 per sent.

Trade liberalisation opened up opportunities for many new private entrants, especially at the retail level. They are supplied mainly by small-scale processors and private family farmers. However, according to information provided by the joint stock company "Profindeks", the retail trade is dominated by large stores. One-third of the 6000 shops in Estonia account for 70 per cent of total turnover. The number of newly founded retail stores declined in 1995. With the emergence of food chains some concentration in the retail sector takes place. The largest store network (in terms of both turnover and number of shops) is ETK (Central Society of Estonian Consumers Co-operatives). The first food chain, called "Edu", was founded in 1993. ETK Konsum in Tallinn is a network of shops selling primary commodities, mainly targeted at better-off customers.

There were 22000 registered wholesalers altogether in 1995, although only a minority of them were actually engaged in the wholesale business. Some were registered as wholesalers solely for tax purposes. According to a market research study, the wholesale business is dominated by six or seven leading companies. Many wholesalers are involved in transit trade between Western countries and Russia. Agricultural commodity exchange markets have not yet developed in Estonia.

To sum up, while with the entrance of new private firms in food processing as well as in retailing market power in the downstream sector seems to be no serious problem, competitiveness of the sector is impeded mainly by the use of outdated technology and considerable overcapacities in the processing industries. This results in negative consequences also for agriculture in Estonia, so that it seems justified to say that the lack of competitiveness in the up- and downstream sector of agriculture might be one of the major impediments for the success of the agricultural sector.

3.1.6 Government policy

3.1.6.1 Macroeconomic Policies

Macroeconomic policies have an important impact on the competitiveness of the agricultural sector. This holds especially with respect to the exchange rate. On 20 June 1992 the currency was fixed against the Deutsche Mark at the rate of EEK 8 to DM 1. The real effective exchange rate (REER), which contains the exchange rate against the eight major trading partners and their CPI, develops differently. A rising REER influences the competitiveness of a country negatively, because domestic products are getting more expensive against foreign goods (see Frohberg and Hartmann, 1998).

Considering the development of the inflation rate, the monetary policy had been to some degree successful, reducing the CPI as a proxy for the inflation rate from 1071.1 per cent in 1992 to 29.0 per cent in 1995, approx. 15 per cent in 1996[3] resp. Thus the conditions for competitive enhancing investment have been approved.

3.1.6.2 Agricultural Policy

The government influences the competitiveness of agriculture by agricultural policies. Until now Estonia has persued a non-interventionist agricultural policy. It has no direct support measures,

[3] Annual change of the CPI in September 1996 compared to the same month in 1995.

no controls on prices and trade and no tariffs to speak of. Instead, Estonia has placed considerable emphasis on regional development. However, rural development policy regarded as an aspect of regional policy is still at a very early stage of formulation.

In 1989, a Department for Regional Development was formed within the Ministry of Economy to handle the allocation of state funds. In 1991, a framework for regional policy was completed, which included tax concessions for new businesses established in less developed regions. Plans for differentiating investment loans by region were initiated but not implemented because of the high inflation rate at the time.

In 1993, a Regional Development and Local Government Board was formed within the Ministry of Internal Affairs. In co-operation with the Regional Policy Office of the Ministry of Economy and the Department of Regional Development in the Ministry of Agriculture, it formulated a new regional policy approach. Approved by the government in December 1993, this approach was designed to establish joint mechanisms for regional policy on the basis of existing structures, means and resources.

Two new institutions were created - the State Council of Regional Policy and the Regional Development Fund. The State Council of Regional Policy consists of people working in state institutions and local governments with responsibility for formulating and co-ordinating regional policy. The Regional Development Fund has the task of facilitating access to credit and improving credit terms, especially in less-developed regions (defined as those suffering from depopulation, a high level of unemployment and a low standard of living).

In Estonia, the Ministry of Agriculture supervises many agencies providing training and extension as well as controling and enforcing food standards. The expenses of the Ministry for these administrative and training acitivities reach about 50 % of its total budget. They are itemized in Table 3.12. Most money is spent on educational and advisory services including agricultural technical schools.

The remaining expenses of the Ministry cover wages and salaries, services bought by the government, expenses on special programmes, subsidies for farm loans, etc. The spending of the Ministry has fluctuated somewhat from year to year since transition started. For example, in 1996 the expenses of Estonian Agricultural University transferred to the administration sphere of the Ministry of Education. The subsidies for running the farmers unions were cancelled.

Table 3.12: Budget of the Ministry of Agriculture, in mill. EEK

Institutions	1995	1996
Estonian Ministry of Agriculture	7.9	10.2
Estonian State Land Reclamation Service	12.7	14.6
Schooling, Training and Advisory Activities:	77.8	48.2
Jäneda Training and Advisory Centre	4.3	5.1
Agricultural Schools	32.9	39.5
Estonian Agricultural University	37.4	-
Training-Methodical Office	0.4	0.5
Agricultural museums	2.8	3.1
Family Farming Development	3.1	2.2
Counties Farmer's Unions	0.1	-
Organisations of family farms and private forests	0.5	-

Costs for farmers training and advisory service	2.5	2.2
Estonian Veterinary Board	3.6	4.3
Veterinary institutions	18.7	20.8
Estonian State Plant Protection Department	5.4	6.1
Estonian Animal Breeding Inspection	2.1	2.4
Estonian Inspection of Plant Quarantine	2.3	3.1
Estonian Inspection of Seed and Variety Protection	7.7	8.5
Total expenses of institutions	141.6	120.5
Total Budget in Ministry of Agriculture	269.1	233.4

Financial support to producers will substantially increase in 1998 (see Table 3.13). The emphasis is on investments, soil improvement and to animal breeders. As mentioned earlier, grain and milk producers also will get substantial transfers from the government budget. In the future, paying subsidies will have to be reconciled with the restrictions currently imposed by the EU.

The main support measures are provided to:

1. high quality seed producers (reducing the seed price)
2. producers of pure-bred breeding animals (pedigree breeding)
3. subsidising credit interest rates (reducing the interest rate on loans)
4. pay partly for the investments)
5. liming soils
6. grain growers (since 1998)
7. milk producers (since 1998)

Table 3.13: Financial support provided to agriculture over the period 1996 to 1998,

in mill. EEK

Type of programmes	1996	1997	1998 expected
Support to producers of pure-bred breeding animals (pedigree breeding support)	10.0	10.9	12.2
Support for liming soils (for lime fertilisers)	4.6	4.4	14.4
Subsidising the credit interest rate (reducing the percentage of the credit)	-	20.0	20.0
Capital support (support of investments)	-	20.0	52.0
Support for grain growers	-	-	60.0
Support for milk producers			30.0

Tariff protection probably will be set up in 1998. Estonia wants to protect its farmers and its processing industry. This will make food items more expensive; a policy which up to now has strongly been avoided.

Among those agencies not supervized by the Ministry of Agriculture the most important one is the Estonian National Land Board which is now co-ordinated by the Ministry of Environment. The major task of this agency is to bring the land reform to an end.

There are also non-governmental agencies, established either by special interest groups or reconstructed out of former structural units from the Ministry of Agriculture. The Estonian Agricultural Producers' (Union of large-scale enterprises) and Estonian Farmers' Union developed during transition period. They represent the interests of different parts of agrarian structures, co-ordinate the action of their members, try to organise service companies and advisory service. These unions should develop their co-operation more in future.

The Horticultural Union is also representing the interests of its members (family farms and co-operatives), arranging co-operation in producing, processing and marketing of horticultural products, also advisory service and schooling. It is working together with public organisation and The Association of Horticulture and Apiculture which is primarily uniting the interest groups (holdings, family farmers etc.)

The Agricultural Board of Trade was set up in 1996. This institution collects market and price information and promotes the marketing of agricultural products. The co-operation between processing companies and their relations to farmers are arranged by the Estonian State Grain Board, Estonian Dairy Association and Estonian Meat Association. Their action is essential for developing market relations in the processing industry.

3.2 Development of Determinants of Competitiveness

In the previous section, the current conditions of those factors affecting competitiveness were discussed. However, development of these factors needs to be taken into account in order to assess the situation of Estonia after she joined the EU. This forward looking evaluation of the situation is a rather difficult and somewhat risky undertaking since no long term trend is

discernible due to the rather short time of transition. Nevertheless, the most important developments already initiated or still to be worked on for improving competitiveness will be elaborated on briefly.

3.2.1 Factor Conditions

3.2.1.1 Land

Four major issues still need to be resolved in the process of land reform. They are briefly described in the following:

I. Those farms which previously were state and collective farms do not have security of tenure of their land. In most cases, they own buildings and machinery. However, they are not the owner of the land the buildings are constructed on neither of the land they cultivate. Rather, this land is still in the hands of the State, awaiting final disposition, and it is rented to these farms on short-term contracts. Therefore, they cannot use the land as guarantees for bank loans, nor sell part of it in order to invest in improved operations on the rest of it. According to the Land Reform Law of October, 1991, this land is to be sold at public or limited auction. Given the limited economic success that most of these farms had in the short period since their creation, it is likely that auctions would result in transfer of the land to other owners.

II. A procedure speeding up privatisation of unused land held by the state is required. Under present circumstances of declining real agricultural prices, which leads to low profitability or losses for many farm enterprises, there has been little interest in acquiring this land. Therefore, successful privatisation may have to offer special incentives for buying this land.

III. Those persons using land as household plots also do not have title of these plots. Utilisation of these plots still rests on how formerly state and collective farms were managed. These pieces of land are for many families a very important source of subsistence income. While their average size is a little over 4 hectares, many of them are less than two hectares and the families that operate them live below the poverty line. On the other hand, these plots are highly productive, yielding almost twice as much output per hectare as family farms and enterprises together. Providing the persons who cultivate these plots with a title would provide further incentives to increase the productivity more and, hence, contribute enable low-income families to improve their economic condition by endowing them with an asset of economic value. Even those families who chose to leave agriculture subsequently would be beneficiaries of titling, because they could then sell their plots in order to raise funds to start a new occupation. This option now does not exist for them. Over time, undoubtedly many titled household plots would be sold and consolidated into larger holdings, which would be a normal and healthy dynamic path for the sector. However, for this to happen, titling the plots again is a prerequisite. Thus titling these plots turns out to be important for poverty alleviation, short-term efficiency in production as well as for long-term efficiency.

IV. Although the work on the cadastre and the titling process has advanced more rapidly in recent months, it is necessary to accelerate these activities as much as possible. Inclusion in the cadastre is a prerequisite for titling, and the objective should be to have all farms registered in both the cadastre and the title book in a period of five years.

Any viable solution to the above problems must recognise that the purchasing power of rural households and farm enterprises is very low at present. Their ability to purchase land for cash or with a substantial down payment is very limited. The option of selling land to interested persons

outside the sector who can afford to pay for it would convert the existing group of farmers into employees rather than landowners, contrary to the spirit of the reform process. It is for that reason that land reform has not advanced much, except in those cases in which the land was restituted.

On the other hand, it must be recognised that interested persons outside the sector buying land would insert capital into the agriculture which is very much needed. One way of reconciling these two aspects would be to promote the functioning of land markets, by making all existing holdings fully transferable through market processes. Thus, for example, farm enterprises which own their land and find it difficult to earn a decent return on this asset would have the option of selling part of the land, or partial interests in the enterprise itself, raising additional capital in that way. Currently, farms do not have those opportunities.

Another way of reconciling these two viewpoints would consist of encouraging interested persons outside the sector to purchase unused agricultural land, and at the same time assigning priority to the existing enterprises in the purchase of the lands which they currently cultivate.

Given the present situation of limited purchasing power of farmers, it also should be recognised that sale and ownership are not the only forms of privatisation of land. An alternative form which exists in many countries is that of granting long-term leases which are transferable and have a duration of, say, of 25 years. Under the condition of Estonia, the government would issue the leases, register them, and receive annual payments on them. Leaseholders would have complete freedom to invest in the land leased and to sell the lease at a privately negotiated price to any third party. Obviously, the price for the lease contract would depend in part on the number of years remaining until it expires. That price would be determined solely by the two parties carrying out the transaction on the lease contract. The only requirement for the government would be to register the transaction after it comes into force. The transferable character of these long-term leases would make it possible that they can be used as collateral for bank loans, whereas this option does not exist for short-term lease contracts.

If the option of long-term land lease were offered, say to farm enterprises, it also would be important to specify legal mechanisms for subleasing and for eventual conversion of the leasehold to freehold, i.e., to full ownership. In addition, it would be useful to grant the option of selling or subleasing part of the lease. One way to accomplish this would be to subdivide the land leased into several pieces and issue a separate lease contract for each parcel, even though the leasee is the same person or enterprise on all parcels. This option is, however, only a viable one for farms having large sizes of land leased.

Finally, it is important that the government offers the land to farmers at price in the case it sells it or at a rental rate if a long-term lease contract is issued at a level which allows a return at least as high as market rates. The currently low profitability of agriculture makes it difficult to earn a return on land as an asset. An additional consideration is that if this process would be used for subsidising agriculture the subsidy would be transitory, designed to facilitate the transition to a market economy in which there will be greater efficiency in resource use. Such subsidies are justified if they can assist this kind of transition, while long-run subsidies are not. Yet another consideration comes into play regarding the price of household plots, where poverty alleviation is the predominant concern.

In the following five interrelated proposals for accelerating the process of land privatisation are made. They deal with the issues outlined above and take into account the considerations mentioned.

I. *Proposals for unused State lands*. Following the provisions of the Land Reform Law (October, 1991), all unused and unclaimed State land should be privatised at limited or public auction. In preparing the land for selling, sizes of parcels should vary but should not be less than 10 hectares. In view of the crisis of profitability in agriculture, the following financial conditions should be established for the sale of these parcels:

   a) Minimum auction prices should be low, following the above discussion of land prices. It is suggested that one-half of the tax assessment value be used.

   b) The required down payment should be 10%.

   c) A special government fund will be established to issue mortgages for 15 years at a special interest rate of 5%, and to collect the mortgage payments for the Treasury. The mortgage payments shall be apportioned between national and local governments according to a prescribed formula.

   d) In the event of serious arrears in the mortgage payments, the purchaser of the land will be given 120 days to arrange a private sale of the land to another person or enterprise who can take over the mortgage payments. Failing such a sale, and if the arrears still exist at the end of the specified period, the land will be repossessed by the State agency and auctioned again.

   e) If no buyers place bids at the auction for sale, then within 90 days the parcel shall be offered again at an auction for long-term leasing (under a 25-year transferable lease). The minimum lease rate in the auction shall be 10% of the minimum sale price specified under a) above.

   f) If there are no bids in the leasing auction either the land shall be retired from the market, or the process shall be started again one year later, with a new auction for sale.

II. *Creation of the legal framework for long-term land leases*. The legal framework for handling long-term, say, of 25-year duration transferable agricultural lease shall be put into place. The leaseholder shall have full rights to produce, invest in the land, sell part or all of the lease, or sub-lease all or part of the lease, subject to being current on the lease payments. The State agency created to handle the mortgages under section I. above will manage the leases on State land and collect the lease payments for the Treasury and local governments, to be apportioned between them according to a prescribed formula. The legislation creating the framework of long-term leases will ensure that such leases may be used for loan guarantees and that financial institutions may take possession of the land leased in the event of bankruptcy. After the lease expired, the parcel shall be auctioned for sale again. The last leaseholder shall be given the right to equal the highest bid for the land, thereby becoming its owner.

III. *Privatising lands of enterprises*. Notwithstanding the auction procedure followed for not used land held by the government and which was not claimed by previous owners (as described in section I. above), a different procedure shall be followed for that land currently used by some enterprises and which also was not claimed by previous owners. The principles governing the "privatisation" of this enterprise lands are suggested to be the following:

   a) The current members of the enterprise, as defined by holdings of labour shares, or stock shares if a shareholding company has been created, shall decide the form in which the

land shall be privatised (by type of parcel), according to the options described in sub-section d) below.

b) The current members of the enterprise shall have the first right of possession of that land. Only if they are not interested to enter into the corresponding financial obligations and further use the land shall it be auctioned.

c) The initial form of possessing that land shall be in form of a 25-year transferable lease contract. At any time after the fifth year, the leaseholder will have the right to convert the lease to a mortgage, and he or she (or the enterprise) will be credited with the sum of lease payments made as a down payment for the purchase. If such right is not exercised during the lifetime of the lease, then at the end of the 25 years the land will be sold at auction. Again, the last leaseholder will have the right to equal the winning bid at the auction to become the owner of the land.

d) Regarding the form in which this enterprise land shall be "privatised" by the above procedures, the holders of labour shares in the enterprise, or stock shares if a shareholding company has been created, shall decide on its form by vote (1 share = 1 vote), with the following three options of choice:

- Privatising all the land of the enterprise as a single entity.
- Dividing the land into a minimum of two and a maximum of five parcels, each of which will be privatised.
- Dividing the land completely into parcels, one per member of the enterprise according to the number of shares that he or she holds. The new State agency in charge of leases and mortgages shall bear the cost of surveying and registering the parcels, under all options.

IV. *Titling household plots*. Holders of household plots shall be given title of unrestricted ownership of these plots, and all the costs of surveying and titling shall be assumed by the state agency mentioned above. No price will be charged for the plot as long as it does not exceed 3 hectares, and the holder of the plot is a current or former member of a state farm or collective farm. Additional area from 3 to a maximum of 5 hectares may be leased or purchased by the household, under conditions described in sections I. and II. above (1/2 the tax assessment value, 10% down payment in the case of purchase, etc.). Land exceeding 5 hectares will not be considered part of the household plot.

V. *Titling procedures*. Titling procedures and procedures for registration of land in the cadastre shall be modernised and accelerated so that all agricultural properties, leasehold and freehold, enterprises and family farms and household plots, shall be surveyed and recorded in the Title Book within 5 years.

3.2.1.2 Labour

Compared 1989 the number of people involved in agriculture, hunting and forestry decreased more than 2.5 times up to 1996(see Table 3.14). Employment in the food processing industry was reduces only by 6 % over the same time span. As is well known the much stronger decline in agriculture is to some extent due to changing the definition of who belongs to this class of employment.

Table 3.14: Number of employees in agriculture, hunting and forestry and in the food processing industry over the years 1989 to 1996, in 1000 heads

	1989	1990	1991	1992	1993	1994	1995	1996
Agriculture, hunting, forestry	150.8	148.5	140.5	124.7	101.5	87.5	63.0	59.7
Food processing industry	28.2	28.0	26.9	26.5	26.7	26.8	27.0	26.6

Private farmers in Estonia can be classified into four different groups:

- Persons formerly employed by state and collective farms who were in management positions and have the skills and contacts to run their own private farm. These individuals have the best chance for making the transition.
- Individuals formerly employed by state and collective farms who were in operational jobs such as tractor drivers, milk attendants, or lab technicians, and who now want to start their own farms. These Persons will have more difficulty due to lack of knowledge and skills outside their narrow specialization's, but they do have a basis for starting farming on their own.
- Families on household plots who have farming skills but generally limited financial resources. Per hectare their farms are more productive than the national average, and to the extent they can concentrate their production in specialty crops and/or acquire more land, they have a reasonable chance of surviving economically.
- Individuals from non-farm jobs who decided to start farming, usually because they can reclaim land which their family held before. These people face the biggest challenges, given increasing competition in the agricultural sector, the corresponding need for efficient farming operations in order to maintain profitability, and the frequent lack of capital.

The government spent about 7.0 mill. EEK for education and advisory service in 1997 and intends to provide the same amount for 1998 (see Table 3.6 above). Higher education offered by the Estonian Agricultural University in Tartu is completely supported by the state. Agricultural research in Estonia is carried out by the Estonian Agricultural University and 6 research institutes. The University employs 1300 people engaged in education which includes also 72 research scholars. The research budget in 1996 amounted to mill. EEK 10.47 and for 1997 to mill. EEK 11.52. There are problems in public funding of research and education since most institutes are facing tremendous cuts in their appropriations. This might cause problems with regard competitiveness in the long-run if in other countries public spending for agricultural research and education is much higher. Estonia might lack human capital to successfully compete in international markets if farmers' skills and knowledge declines relative to those in other sectors of the economy but also in other countries.

It might be expected that wages and salaries will increase in the future in comparison to other inputs. To be able to compete for labour Estonia's agriculture must offer at least the same wage as the persons would earn in other sectors. It was shown in Table 3.5 above that wages in agriculture are already among the lowest in the entire economy. Hence, increases in (marginal)

productivity are needed otherwise farm labour is going to decline further. One important way to secure higher productivity besides more investment is through education and training.

The 6 research institutes supervised by the Estonian government are:

- the Estonian Research Institute of Agriculture at Saku with 46 researchers
- the Estonian Institute of Agrarian Economics at Saku with 16 researchers
- the Estonian Institute of Agricultural Engineering at Saku with 14 researchers
- the Research Centre EVIKA (biotechnology) at Saku with 8 researchers
- the Estonian Agrobiocentre at Tartu with 14 researchers
- the Jõgeva Plant Breeding Institute at Jõgeva with 48 researchers

The advisory service in Estonia also needs to be improved. At present, it consists of a variety of programmes and institutions working in that field. The following different main types of advisory services can be distinguished in Estonia:

- National advisory services, for example, advisory services established at the Ministry of Agriculture, supported largely by PHARE.
- Advisory services managed by two or several institutions; e.g. the Ministry of Agriculture has established a joint advisory service together with producers' associations.
- Subcontracted public sector advisory services: the government delegates the management and organisation of advisory services via a contract with other agencies.
- Private advisory services: profit-oriented companies which are based on shareholding principles (producers' associations) or non-profit organisations.
- Advisory services based on educational institutions.

3.2.1.3 Capital

The main instrument to support investment in agriculture is the *Agriculture and Rural Life Credit Fund* (ARLCF), established in 1993. ARLCF has total funds of 400 mill. EEK. This State Fund provides aid for investments in agricultural holdings in the form of interest subsidy for both short and long term loans. Also loan guarantees and capital support are possible. The funds are channelled via 9 authorised commercial banks and 5 lease companies to customers. The authorised banks are responsible for the assessment of loan applications and the evaluation of business plans. At the State budget for 1997 20 mill. EEK has been accepted for subsidising the credit interest rate. The state has subsidised the interest rate of these loans so that in 1996 the interest of long term loans (up to 10 years) was 11 % and for short term loans (under 1 year) 13 %. By the end of 1995 the Fund has assigned total of 346.6 mill. EEK, of which 233.2 mill. EEK as long-term loans. In 1994 the average size of loan was 125 000 EEK.

In November 1996, the *Rural Credit Guarantee Fund* under the guidance of Ministry of Agriculture was established. The main goal of this fund is to give additional guarantees to rural enterprises when their borrowing exceeds the collateral they have. The fund is valued today at 50 mill. EEK and is able to guarantee up to 60 % of the loan amount. The fund got it's capital from

selling's of the European wheat aid. The fund guarantees long-term investment loans for the following purposes:

- agricultural production
- agricultural supplies and marketing of agricultural products
- entrepreneurship and agricultural services
- fishery: inshore and fresh-water fishing and fish breeding, fish processing
- in rural areas also activities that are not directly connected with agriculture

The most recent improvement is the *Capital Grant Scheme* launched in 1997 for supporting investments to agriculture and rural life. The scheme provides support to selected investments with up to 25 % of the investment amount. The funds for this purpose are 20 mill. EEK. In the 1998 draft budget allocation is nearly threefold.

In addition to the support schemes mentioned, an investment programme for land improvement exist. In 1997 the aid provided through this programme totals 31.5 mill. EEK.

In summer 1993 the Estonian government passed the Agricultural Producers' Income Law. According to this law producers and state negotiate the target prices at level that will ensure income parity between the agricultural and industrial sectors. The required level of support for the agricultural sector would be defined as the difference between the market price and a target price multiplied by projected output levels. However, by 1997 agriculture has not received any income support payments because of budgetary reasons. At first stage the main emphasis was put on the development and recovery of overall economy. The calculated budget allocations for agriculture would have been 700 mill. EEK in 1993, 400 mill. EEK in 1994 and 280 mill. EEK in 1995.

Only a very limited range of support measures is in use at present. They are used to improve the quality of inputs, soil and cattle used. However, Estonia is planning to launch some direct income support measures starting 1998. Planned measures for grain producers total 60 mill. EEK, for milk producers measures total 30 mill. EEK. If these measures will be accepted, the support will not cover all farmers. The funds will be allocated only to most efficient producers, which exceed certain criteria's. The aim is to enhance the productivity of agriculture.

A large share of the capital stock currently in use in agriculture is outdated and needs being replaced. Similar, livestock breeds and crop varieties must be substituted with modern high yielding ones. This all requires substantial investment. In general, the government should not need to support farmers in their efforts of replacing outdated machinery and equipment and of acquiring modern varieties and breeds. Rather, the returns accruing to these investments equal market rates. However, as was pointed out above and will be shown below agricultural terms of trade deteriorated quite substantially in Estonia. This leads to low profits in farming and investments must be financed more through taking on loans. The rather low profitability of investments into agriculture is of concern to the government and one reason for providing cheap credits, loan guarantees and/or paying part of the investment costs. The question is whether this is the best strategy. As already mentioned, for efficiency reasons it is advisable to let producer prices reach world market levels and, thereby, increase the rate of return of capital used in agriculture. If they will exist at all distortions will be reduced from the rather high level caused by current policies of keeping producer prices low and supporting inputs.

3.2.2 Firm Structure

For preserving the country life and at least the present capacity of agricultural production any existing form of entrepreneurship may not be rejected now. The farm structure existing in a rather diverse form is a reflection of the economic condition currently prevailing but is also based on historical developments. The present process of the agrarian reform in Estonia shows that restoration of the agrarian structure is quite a long-lasting process and may last as long as the economic condition alter as well. There is no single optimal farm size. Rather this depends on many conditions like resource endowment, managerial skills and technology available. The government should provide the framework that farm sizes are relatively easy to adjust. This requires:

I. legitimating the possibilities of buying additional cultivated land at the limited auction;

II. considering tax benefits for a certain time along with buying the land;

III. increasing the direct support for a certain time, regarding actual investments or a certain share, repayment of investments on account of direct supports.

Preserving a considerable part of large-scale enterprises might be necessary for using the production factors efficiently. Whatever the farm structure is the government should provide the necessary external conditions to have farmers always adjust their size of operation to the optimum. That requires that the government refrains from supporting a certain type of farming more than another.

- *Re-establishing of private farms*. In assessing the development of agrarian structure the possibilities it is important to estimate the share of private farms. As already mentioned, private farms contribute about 1/5 to gross agricultural output, cultivate 16 % of the land currently in use and account for 15 % of the legal registration of land. In 1995, 28,9 % of the growth in the sown area took place on land under their possession. They also lease land on a temporary basis. Private farms were established first of all by those people living in rural areas or working in agriculture. Only a few urban dwellers started farming. These were mainly inheritors of land. More successful in re-establishing farms have been those who had access to buildings as well as machinery and inventory in favourable conditions. Gradually, starting farming becomes more difficult. This makes it unrealistic that in future new farm founders will arrive, especially from towns. Only those people might contemplate setting up a private farm who currently belong to the so called group of ‘subsidiary farmers of inhabitants’. The difference in the meaning of the two terms ‘private farm’ and ‘subsidiary farm of inhabitants’ is made for juridical purposes. The first one refers to farms for which the property rights on the land cultivated are registered with the appropriate agency. For the second term, this is not done. Estonia’s so-called Land Reform can only be regarded as finalised if property rights for the entire land are properly registered. Only then can a considerable part of subsidiary farms switch their legal status to become a private farm making it possible to handle all economic and juridical activities related to that land in a proper way. It is estimated that the ‘subsidiary farms of inhabitants’ make use of almost half of the agricultural land currently cultivated.
- *Developing large-scale enterprises*. In 1995, the land used per enterprise was at the average 471 ha of crop land, about 600-650 ha of arable land and total area cultivated was 1400-1500 ha. In some cases the land is scattered rather widely around the farm making land consolidation programmes necessary In many cases the servicing subdivisions (repair shops,

grain storage) have also been widely dispersed and often became independent legal enterprises. In such cases. These service centres need to be consolidated as well. There is yet some vagueness about the best legal form of enterprise from an economic viewpoint. Those legal forms existing under socialist time are not suitable for a market economy. However, neither are those for agriculture provided currently by the Law of Business.

- *Subsidiary households of inhabitants*. This category includes mostly people who have worked in former state and collective farms. According to the present laws they can use 2 hectares of land which is situated close to their residence. According to the data of the Statistics Department they are using 347 900 hectares of land. The share of area sown by these subsidiary households is only 33 % of the corresponding figure for the entire nation. To survive in the future these subsidiary farms must be converted into private farms as indicated above. The legal basis for this needs to be set up. It could rest partly on the law of 1936 (State Gazette of the Chamber of Rural Workers and Small Farmers, 1936, 34, 248) which would give them the right to participate in leading the country life and protecting their own interests.

From the point of view of a long-run economic development strategy for agriculture, structural policies should pay attention to the following three priorities in order to maintain or improve international competitiveness:

- location of production or enterprises;
- the optimum size of enterprises;
- specialisation of enterprises.

3.2.3 Downstream Sector

The Estonian food processing industry is in a crisis. The entire sector needs substantial improvement. In particular, attention is to be given

I. to improving the efficiency and competitiveness of agro-industry as the only way to ensure its survival in the longer run;

II. to providing an economic environment of improved price-cost relationships, which will increase profitability and therefore permit the extensive investments needed to rehabilitate the industry in technological terms. It must be remembered that this is a very capital intensive sector;

III. to improving the economic conditions of agriculture, so that the input to this industry - agricultural raw material - is available at competitive prices.

Legislative reforms to eliminate the restrictions on privatized agro-industry are urgently needed. In the long run, replacing the outdated capital stock of this sector has a high priority and must be done by private capital. To expect the government to take on that task would place an insupportable strain on public finances. However, the government can play an important transitional role in promoting the required investments, as part of its responsibility for influencing the transition toward market principles. As a transitional programme for this industry designed to promote investment the following the government could consider the following elements:

I. to implement tariff for protecting the industry;

II. to maintain certain levels of employment, staying with the existing locations of plants, making investments of certain sizes and types, etc.;

III. to provide technical advice to processing co-operatives on how to strengthen their business management practices;

IV. to provide technical and legal assistance to processing co-operatives on how to convert their companies into shareholding enterprises, and how to attract outside investors;

V. A widening of the programme of the Agriculture and Rural Life Credit Fund (ARLCF) so that it can provide more loans through banks at subsidized interest rates for investment in and restructuring of agro-industrial plants, for a five-year transitional period only. Such a programme would also take into account sector-wide projections and parameters, e.g., the existing overcapacity in the grain milling industry and therefore the inevitable requirement that many mills close down. In other words, not all plants in the agro-industrial sector can be made viable, but those which have decent prospects deserve support during a transitional period so that they are able to stand on their own feet afterwards.

Though Estonia is quite successful in acquiring foreign direct investments (FDIs) there is plenty of room for attracting more. One advantage of FDIs is that they are accompanied by human capital in form of technical knowledge and managerial skills. Hence, the government is to increase its efforts for providing the security that these investments are protected in terms of having the same rights as domestic investments; especially all ownership rights must be granted to those who make the investment.

3.2.4 Demand

Consumption of food is increasing in Estonia. In 1996 the intake of energy went up by 10 % and that of protein by 9 % compared to the previous year. Consumption of cereals, potato, sugar, meat, oil and fats increased. Therefore, mainly consumption of those food items increased for which little demand is relatively small. The structure of consumption of oil and fats also changed, consumption of butter decreased and consumption of margarine and oil increased. The increase in consumption of foodstuffs is caused by the development of economy and the raise of living standard, connected with it.

The gross domestic product (GDP) in the first half of the year 1997 grew by 11.7% compared with the first half of the year 1996. For the next year it is predicted to have the growth of GDP by 6%.

The bigger rise in incoming compared with the rise in consumer price index has continued up till now. Thus, income has increased by 25.6% since the beginning of 1996 until the 2nd quarter of 1997, while the consumer price index increased only by 18.5% over this period. This development of real income is expected to continue also in the near future.

According to projections Estonia may reach the consumption level of the developed countries at the beginning of the next century, i.e. in about 4-5 years or maybe even earlier. Though these developments give rise to high expectations, the effect of the demand side on the competitiveness of agriculture and the food processing industry is rather small. The reason for this is to be seen in the small size of the country. Many of the food industries may find the domestic market too small to reach an optimal size of operation unless they export. This needs more efforts than only selling

in domestic markets. Even if no trade barriers were to exist other necessities like advertising in different languages, getting aquainted with various cultures etc. makes selling abroad more costly than at domestic markets. Although after joining the EU the common market will certainly be larger also for Estonia a great deal of these non-economic barriers are not going to fade away suddenly.

3.2.5 Government Policy

A liberal policy that intensifies competition is the best way of promoting the competitiveness of a sector and the national economy as a whole, for it prevents efficiency-reducing market distortions, misallocation of resources and an unjustified discrimination of other sectors of the economy. However, given that Estonia wants to join the EU such a liberal policy course will be hard to maintain, since it cannot be expected that the EU will fully liberalise its agricultural markets. As long as there exists no consistent policy strategy in this respect the farm population has no reliable signals there will be a high level of insecurity for the private decision makers hampering the realisation of efficiency-improving measures.

An attempt to reduce this uncertainty is a programme called 'National Strategy for Sustainable Agricultural Development' - called National Agricultural Strategy hereafter. It provides a discussion of the the principle objectives of agricultural policies. According to this programme agricultural policy in Estonia pursues three objectives:

- Improving the rural standard of living and quality of life, including providing an adequate social environment, striving to achieve approximate equality with urban areas in these respects.
- Reducing the trend toward depopulation occuring in some rural areas, especially in the border regions.
- Ensuring a high degree of food security for Estonia.

The second objective derives in part from the current political context and also from a deeply rooted conviction of Estonians that all of the country's productive resources, of which land represents the most abundant one, shall be utilised. It can be argued that reaching the first objective would also lead to achieving the second one. Hence, they might be combined into the following one:

Main Objective 1:

Improving standard of living and quality of life and providing an adequate social environment in rural areas as well as striving for an approximate equality in this respect with urban areas.

For satisfying this objective an increase in real rural income and purchasing power of the rural people is important. However, this is only a necessary but not sufficient condition.

If the objective of food security is seen by policy makers as being food self-sufficiency then it may become contradictory to the first main objective stated above. In all regions of the world, it is increasingly recognised that striving for food self-sufficiency may hamper the economic development of the country. Neither is autarky in food a precondition for securing access to food. There are wealthy countries like Switzerland, Japan, Norway which import much of their food due to their resource endowment. In fact, most countries both export and import food product.

Although agricultural prices fluctuate on world markets, it always is possible to import the necessary amounts to make up a shortfall in domestic supply.

Food production enables the use of resources existing in rural areas like land and fixed assets which otherwise might be idle. If employed the returns to these resources and to labour input is an income source for the rural people. Hence producing food must be seen as an opportunity of generating income for rural people and not primarily as a means for securing access to food. Nevertheless, it should be recognised that there are uncertainties in the long-run projections of world food supplies, and therefore to be on the safe side Estonia may wish to pursue a moderate degree of national autarky in food. The figure of 70 per cent self-sufficiency as an objective has been suggested also considering Estonia's comparative advantage.

Based on the discussion above the second main objective of the national strategy for sustainable agricultural development may be stated in the following way:

Main Objective 2:

Achieve at least 70 per cent national food self-sufficiency, and maintain a positive balance of external trade in agricultural products, provided this does not lead to farmers abandoning more profitable lines of production for less profitable ones.

These are the major goals as stated in the National Agricultural Strategy. Earlier agricultural policy documents also contain references to supplying the population with foodstuffs at "affordable prices". Although statements of this nature are sometimes used in agricultural policy documents, careful reflection shows that they can undermine the pursuit of the other objectives stated above. First of all, food prices in Estonia already have declined considerably in relation to non-food prices in the last four years, to the detriment of the economic well-being of rural families. In order to try to reduce the gap in incomes that has emerged between urban and rural areas, it would be important to pursue policies that raise agricultural prices relative to other prices in the economy. Increasing relative agricultural prices also is one of the requirements for reversing the decline of agricultural output that has occurred in recent years.

For this reason, it is not appropriate for an agricultural strategy document to adopt as a major objective the maintenance of low levels of food prices for the urban population. Of course, poverty exists in urban areas as well, but it can be most effectively addressed through targeted programmes of food assistance, rather than through subsidising urban households of all income levels as is implicitly done by keeping agricultural prices low. In the light that rural poverty appears to be more severe and widespread than urban poverty at present, such a policy is comparable to a regressive subsidy of consumers, in the sense that it benefits more the urban population which on average is better off and reduces income of the rural population which is worse off. Also, it is an inefficient policy, for it benefits all income strata rather than only the poor households. Therefore it is more costly in terms of welfare losses of farm families than a targeted food subsidy would be. The latter would be paid from the government budget and be preferable considering equity.

Principles for Implementing the National Agricultural Strategy

In the context of pursuing the objectives as stated in the National Agricultural Strategy mentioned above the main principles for its implementation would be the following:

- Policies and programmes that provide assistance to the rural poor will do so in a framework which encourages them to help themselves; i.e. that puts them on a self-sustaining growth path of their own making them eventually independent of assistance from others.
- Agricultural policies will not aim to promote agriculture only, ignoring the possibilities for development offered in other sectors of the economy, but rather policies shall be oriented toward ensuring that agriculture is not an economic parasite on the rest of the economy, and neither is it exploited by the other sectors in the economy. This is a concrete expression of what is meant by adopting a balanced view of the role of agriculture in the economy.
- Institutional arrangements made for the agricultural sector shall be sustainable in the long run.
- Environmental sustainability shall be pursued as an integral part of the National Agricultural Strategy.
- Fiscal sustainability shall govern the policy recommendations. That is, expenditure policies shall be conditioned by the budgetary realities and where new levels of outlay are required, the corresponding sources of funding shall be developed in the National Agricultural Strategy.

These principles represent conditions for selecting instruments. Together with the main objectives they provide the necessary normative framework for developing appropriate and detailed agricultural policies. Policy options or alternative policy scenarios must be specified and evaluated with regard to their impact on the agricultural sector and the entire economy. This topic is taken up in Chapter 3.3.

During the early years of this decade production, real income, and real prices for the agricultural sector declined. In 1995, total output in the sector stood at 53 % of its 1986 level, and 63 % of its 1991 level. Producers' income fell along with output. Official statistics show that real agricultural GDP declined by 24 % between 1992 and 1995 which was especially strong between 1991 and 1993. The real agricultural price index, which measures the purchasing power of farmers' output, with respect to all goods and services in the economy, declined by 40 % between 1992 and 1995. Due to these trends the agricultural trade balance, which historically showed always a strong surplus, has turned negative in recent years.

Review of past and current agricultural policies shows that while the sector was, in effect, highly subsidised by policy in socialist time, it now receives less support than agriculture does in any of the OECD countries. In fact, the net subsidy Estonian agriculture currently receives is slightly negative, whereas the average subsidy for agriculture is 41 % in OECD countries.

It is recognised that not all farms may economically survive the transition process. Neither may it be profitable under current market conditions to produce all commodities. As a rule, those who successfully cope with the profound changes in the current policy environment will be the more efficient ones. Also those products currently profitably produced in Estonia may be the ones in which Estonia is competitive. Farmers' representatives understand that it is imperative to become more efficient in order to be able to survive economically. Indeed, in a very fundamental sense this National Agricultural Strategy can be regarded as a programmem for overcoming the structural problems in all areas of the sector and making it more efficient. The goal on efficiency is not doubted.

However, policies leave usually a wide margin in determining the threshold between "efficient" and "inefficient" enterprises and activities. It is similar to setting the height of the bar for high

jumpers, in order to determine which athletes qualify for further rounds of competition. Setting the bar very high means that most of the producers will fail, and setting it too low allows more than later will survive to continue.

In general, EU countries have set the bar rather low for farmers, compared to other countries. Initially, through tariffs and controls on prices and trade, and increasingly by providing direct support, the European countries have decided to adopt a rather generous interpretation of what is an efficient operation in agriculture.

Estonia probably has set the bar higher than any other country for its farmers. As of today, no direct support measures, no price controls and no trade barriers to speak of are implemented while macroeconomic policies are not very favourable for the sector. The appreciation of the real exchange rate penalises exporters and favours imported products. Maybe New Zealand is the only country which challenges for farmers' economic survival as much as Estonia by establishing such a macroeconomic and trade environment. In addition, Estonia has implemented this policy at a time when the sector's institutions still are not fully adapted to meet the requirements of a market economy; especially those institutions affecting land tenure and farm support services.

Therefore, a major policy issue with respect to agriculture is currently whether agriculture shall be supported. This raises the question of what the most appropriate trade policies, direct support levels and the exchange rate policies are. The policies discussed in the National Agricultural Strategy aim at creating an agricultural sector which is capable of surviving under varying international circumstances in the future. Therefore, protectionist policy are not advocated because they create inefficiencies and hamper competitiveness. However, given that Estonia wants to join the EU, a logical question is whether modest tariff protection and some direct support (known as the McSharry Plan in the EU) would be appropriate. In addition, one may question the rational of maintaining the current exchange rate policy for some years to come if developments of balance of payments make the current exchange rate policy unsustainable in the long run. As mentioned above, this policy has negative consequences for agriculture and the manufacturing sector with regard to remaining competitive on world markets.

The principal objective of price and trade policies is to improve the economic incentives for agricultural production including fisheries and forestry and at the same time to reach a balanced growth for all sectors of the economy. It is not expected that reductions in incentives which occurred since 1992 can be recovered, but some should. The economic development over the recent past which favoured the service sectors and urban consumers must be changed. Neither are special privileges sought for agriculture. A more appropriate balance in economic growth among the various sectors of the economy should be the national goal for economic policy.

As stated above, the main objective of the National Strategy is to improve the quality of life in rural areas. This goal requires more attention since poverty and the problems associated with it have worsened particularly in rural areas. Within this context, the role of macroeconomic policies is to establish a framework in which farming can become more prosperous, without going to the extreme as some other countries did in terms of agricultural policies which put a high burden on the government budget or cause very high food prices for consumers. With a modest improvement in incentives and with better supporting programmes, Estonian agriculture can realise its substantial potential.

The main question to be answered with regard to agriculture is whether it has the potential to be competitive in world markets in the future. Agricultural prices in the EU which currently are

rather high are likely to be reduced, and the abnormally low international prices for many commodities are likely to rise as a result of the upcoming international trade negotiations. International prices should become increasingly the benchmark with which the production costs of Estonia's agriculture should be compared. If such an analysis were to reveal that Estonia does not have the potential to be competitive then it could be concluded that the present governmental policies of promoting almost exclusively the service sectors are correct. However, if it is determined that agriculture does indeed have the potential for competing in an international framework, then different policies should be put in place.

Recently, such an analysis was carried out for 15 agricultural, fishery and forestry products based on prices and cost data of the years 1994 and 1995. One should be aware that taking only 2 years for such a comparison can sometimes lead to some distortions. Nevertheless, for most products, the results are sufficiently obvious that they can be taken as a guide for policy making.

Of the 15 products analysed, for 11 the results indicate that Estonia has a comparative advantage. It is strongest in pulpwood, sawlogs, sawnwood, potatoes, barley, oats and sprat and herring and still rather significant in for wheat and plywood. These calculations confirm the view of many agricultural experts that Estonia has a long-run potential in these products. Some of these products might be exported. The grains could replace imports.

The results for milk also indicate a comparative advantage in substituting imports. With regard to exporting milk the results were mixed due to fluctuations in world market prices. However, at the average over 1994 and 1995 a comparative advantage exists for Estonia. If world market prices were to rise due to a reduction in subsidies to milk producers in other countries (Table 2-4) Estonia's comparative advantage in milk would be even stronger.

Estonia's agriculture does not produce according to the comparative advantage it has. To exploit this potential three policy options will be briefly discussed:

1) Macroeconomic policy promoting agriculture and manufacturing by providing more incentives; called ***macroeconomic policy to promote agriculture and manufacturing.***

2) Policy protecting those industries that face competition from imports, but not the exporting industries. This will be referred to as ***policy favouring import substitution.***

3) Policy that directly compensates all agricultural activities for part of the cost of the present policy; termed as ***compensatory policy for agriculture.***

On 1) ***Macroeconomic policy to promote agriculture and manufacturing***

This policy basically would consist of devaluating of the Estonian Kroon in order to correct partly the strong appreciation it showed in real terms. Most countries in the world allow exchange rate corrections to take place when their inflation persistently exceeds that of their trading partners. This policy does not assume that the goal of fixing the exchange rate with respect to European parities is inappropriate in the longer run. To the contrary, that goal would be consistent with the stated intention to join the European Union. The question is whether, in retrospect and in view of the unexpectedly high cumulative inflation that has occurred since June of 1992, the fixing of the nominal exchange rate has not proven to be premature. Finland, which has a considerably higher income level, fixed its rate only after letting it float for four years, and even so there is a strong national debate on the issue, in light of Finland's 17 % unemployment rate. It should also be recalled that - according to the opinion of some some experts - Estonia

postponed its devaluation in the early 1930s for too long, to the detriment of employment and income levels in the primary and secondary sectors and the economy as a whole.

This policy scenario would involve continued devaluations of the exchange rate (crawling peg) for a period of a few years, and then fixing it again when both domestic prices and the exchange rate have more or less stabilised. The cost would be a slower rate of decline of inflation, i.e., more time required to achieve full price stability. With a low government budget deficit (currently around 2 % and scheduled to reach zero), which is very much in Estonia's favour, the inflationary consequences of devaluations are transitory and relatively smaller than the devaluations themselves. Ultimately, both price levels and the exchange rate would stabilise at a new and higher level.

The advantages of such a policy would include: higher *real* prices for agriculture and manufacturing including the food processing sector, higher growth of output and income in those sectors, more employment in those sectors, and less rural poverty. Growth of the service sector would slow somewhat, but international experience shows that the net effect on the economy's growth would be positive.

This policy option would substantially strengthen Estonia's international competitiveness because it would give additional price incentives to Estonian exporters and to those sectors and subsectors that compete against imports. It would also strengthen Estonia's comparative advantage. Viewed from this point, the present macroeconomic policy has conferred an advantage to producers in other countries, although that was certainly not the intention of policy makers. It causes problems because given the small size of its domestic economy Estonia must expand its exports rapidly in order to grow and prosper.

It should be underscored that this policy option would fully maintain Estonia's commitment to a liberal economy. It would preserve free trade policies and confirm the lack of protectionism and would as well help to reduce the calls for fiscal subsidies for agriculture, by virtue of increasing agriculture's profitability. While it would represent a departure from the fixed nominal rate of exchange, it would stabilise the real rate of exchange. Other aspects of the current macroeconomic policy are not suggested to be changed.

On 2) ***Policy favouring import substitution***

This policy option would utilise the instrument of import tariffs. Imposing tariffs as a means for increasing domestic prices of products competing with imports. It already has been proposed as a way to implement the Agricultural Market Regulation Law, and a relatively high tariff ceiling has been negotiated with WTO.

The current situation regarding the high real exchange rate makes calls for tariff protection almost irresistible, and certainly tariffs would improve profits of import-competing activities (e.g., cereals). However, the imposition of tariffs would mark a significant retreat from the liberal (open) policy orientation, much more so than a crawling peg of the exchange rate would. And it would lead to important disadvantages, most notably an increase in the costs of production for industries that use as inputs the products of the protected sectors.. Note that these objections do not apply to the products that would be protected by countervailing duties.

Therefore a tariff policy tends to work against export sectors (such as dairy products, wood products and fish), because by increasing the costs of some of their inputs it makes them less able to compete on world markets, and they receive no compensation in the form of higher output

prices in kroons, as they would under a devaluation. If import tariffs were applied very selectively to only a few agricultural products, then this kind of consequence could be minimised, but once a tariff policy is implemented, it is hard to avoid its extension to many products. In addition, tariffs are often implemented as to affect products not equally; usually being moore in favour of those that have not the strongest comparative advantage.

These disadvantages can be avoided somewhat by putting relatively small tariffs on and making them as uniform as possible over all commodities that are protected. In that way, the government would not be tempted to "pick the winners" among the subsectors, but rather it would let market forces determine which lines of production prosper and expand, and which ones contract. This is the best way to respect comparative advantage and enhance the economy's growth prospects.

It should be emphasised that in terms of economic efficiency the tariff option is inferior to an devaluation of the exchange rate. However, if the rigidity of the nominal exchange rate is maintained, then this option could be important for some parts of agriculture, mostly the grain producers, who suffer the consequences of international agricultural subsidies.

On 3) ***Compensatory Policy for Agriculture***

The Common Agricultural Policy of the EU (CAP) has shifted away from measures that attempt to influence producer prices toward direct income compensation of producers. This is part of a general concern to have less price distorting policies. The WTO also endorses instruments of direct compensation, as opposed to price distorting measures.

In the Estonian context, such a policy could take the form of direct payments to producers, per hectare of land in cultivation (or in a fallow cycle). To give an example, payments could be made of about EEK 1000 per hectare for a fifteen-year period, as a compensation for the decline in real producer prices in the past. Comparable sums could be provided per head of cattle to beef and milk producers, and per boat to fishermen. It may be desirable to try to give small producers who usually have a lower income a proportionately greater compensation by, for example, putting a limit on the total land eligible for the programme, say of 100 or 200 hectares. Alternatively, a degressive payment per hectare could be used for land in excess of 100 hectares in any one farm.

How could such a programme be financed and keep the government budget balanced? Since the exchange rate policy has caused an intersectoral transfer of resources, away from agriculture and into services, the logical approach would be to tax the private service sector (banking, wholesale and retail trade, construction, business services, hotels and restaurants, transportation, etc.), at a rate tailored to raise the revenues for the compensation programme. Thus, this option would rely on fiscal transfers. As envisaged, these direct payments would be in addition to expenditures on rural infrastructure and farm support services, which should be provided in any event.

This policy option has the significant advantage of being neutral with respect to prices, thereby avoiding distortions in relative prices and not putting some sectors, such as exporting activities, at an economic disadvantage. At the same time, it would go a long way toward restoring profitability to agriculture.

There is an important variant of this option, which consists of capitalisation of the direct payments so that a farmer, forester or fisherman may utilise the corresponding lump-sum payment for purposes of purchasing equipment or making other investments, without needing recourse to bank financing, which is difficult to obtain in these sectors. Under this variant, the producer could elect to receive a high-interest government bond, which would be quite distinct

from the vouchers used to compensate landowners in the land reform programme. The bond would pay attractive rates of interest so that it could be sold by the producer for its face value to a bank or private individual (including foreigners), thus raising a capital sum for the producer. The face value of the bond would be calculated as the present value of the 15-year time stream of payments. The mechanism of the bond is recommended in order to avoid placing too much pressure on the government budget in a single year. In effect, the capitalised sums would be provided by private financial markets, and the government would make its contributions over the 15-year time horizon.

In sample numbers, the mechanism would work something like the following. Suppose an enterprise held 100 hectares and the direct payment plan envisaged payments of kr 1000 per hectare. Then under Option 3, the enterprise could elect to receive kr 100,000 per year. Alternatively, under Option 3a, it could receive a bond whose face value were 700,000, if a discount rate of slightly over 14 % were used. The government would pay the bondholder 14 % per year on the face value, or 98,000. The producer could then sell the bond for approximately 700,000 and use the resulting funds to capitalise the farm or forestry operation, or purchase fishing gear.

The government should further work on reforming institutions to make them be more in line with the requirements of a market economy. Some of the short comings currently existing were referred to already above. To complete the transition process with regard to institutions is very important and its urgency is often overlooked. There are many aspects which needs to be mentioned and which have a substantial bearing on improving competitiveness. Some of the regulations which Estonia has to put into place are also included in the White Book of the EU agreed upon in 1994 in Essen. Other areas are left to the Estonian government. Some of which are just mentioned below:

- improving the functioning of markets
- setting up a market and price information system
- reform the education and training system as well as research to be in line with ‘western’ ones
- protection of foreign direct investments
- improve the administration to be more efficient and effective
- setting up and enforcing quality standards
- provide possibilities for risk spreading
- facilitate the setting up of co-operatives

The items mentioned are not exhaustive but rather the ones needing most urgently attention. Also the macroeconomic policies should ensure that both agriculture and the food processing industry are not implicitly taxed. Quite some importance is also attached to the rural economy. Farmers might want to have job opportunities during the off-seasons. They must have easy access to all the necessary infrastructure in rural areas like schools, medical services, banking facilities, juridical support, cultural events, sufficient shopping opportunities, transportation system etc. Especially, excellent roads and railroad services are quite important for agriculture to have transportation costs as low as possible.

3.3 Discussion of Quantitative Measures

3.3.1 Profitability Indicators

Profitability indicators as one of the tools to evaluate competitiveness of the sector were calculated for Estonia. The calculations were done according to the scheme, suggested by the Agricultural Economics Research Institute, Finland (MTTL) and agreed upon by all the participants in the project. The information was gathered and profitability studies were prepared for various subsectors of Estonian agriculture. Products covered are:

- cereals- wheat, barley, malting barley, oats; rapeseed;
- potatoes,
- sugar beets;
- milk;
- beef;
- pork.

Two types of Estonian farms were chosen for these calculations:

– the average farm, which was derived from average statistical data about productivity, costs and also prices in Estonia in 1996;

– the most efficient family farms, which have reached the highest yields and consequently the best economical results.

Gross return, variable and fixed costs, labour input were calculated to get gross margins. All the tables were built up according to the same structure, where Gross margin I was calculated as the difference between total return and operating costs, Gross margin II represents the difference between Gross margin I and labour costs, while Gross margin III give the value of Gross margin I per labour hour.

The labour costs are calculated according to the required labour input and existing remuneration level in Estonia, including also social tax payments, which are 33 % from the salary.

Estonian farmgate prices of 1996 are taken as producer prices.

The summary calculations for the crops in 1996 are represented in Table 3.15 and for animal products- in Table 3.16.

Table 3.15: Profitability indicators of crops for Estonia

	Unit of Measure-ment	Wheat	Rye	Barley	Oats	Rape seed	Pota-toes	Sugar beet
yield	mt/ha	4	3.5	3.5	3.5	1.9	13	25
labour requirement	h/ha	3	3	3	3	3	8	17
price	ECU/mt	116	116	103	97	194	162	29

Total return	ECU/ha	482	422	376	354	369	2415	792
total operating cost	ECU/ha	308	271	260	241	243	1285	620
labour cost	ECU/ha	3	3	3	3	3	8	18
fixed cost	ECU/ha	9	9	8	8	5	28	653
gross margin I	ECU/ha	174	111	116	112	126	1130	172
gross margin II	ECU/ha	171	108	113	109	123	1122	155
gross margin III	ECU/h	58	37	39	37	42	141	10
revenue	ECU/ha	162	99	105	102	118	1093	139

Table 3.16: Profitability indicators of animals for Estonia

	Unit of Measurement	Milk	Beef	Pork
yield	mt/animal	5	0.225	0.07
labour requirement	h/animal	85	22	7
price	ECU/animal	186	1360	1260
Total return	ECU/animal	1037	312	89
total operating cost	ECU/animal	590	260	74
labour cost	ECU/animal	88	23	7
fixed cost	ECU/animal	109	38	12
gross margin I	ECU/animal	447	52	15
gross margin II	ECU/animal	359	29	8
gross margin III	ECU/h	5.3	2.4	2
revenue	ECU/animal	250	-2	-5

Indicators provided in these tables show us that all the products covered but meet at the current price level and with the input output coefficients reached in the most efficient part of Estonian family farms are profitable. It is proved by the level of Gross margin I and Gross margin II and also by the revenue level. Slightly negative values of revenues for beef and pork indicate that

current price level is satisfactory to cover operating costs and also labour costs but is not sufficient to generate income for investments into the new technologies.

At the same time the differences in the level of Gross margin III for different production lines should be recognised. In livestock production that level is significantly lower as in crop production, where it is relatively equal but potatoes have indicated very high level of profitability in 1996. That might not have permanent trend because the producer price level for potatoes in Estonia was more then twice higher as in Latvia (which now is the part of the Baltic FTA), and also as in Finland.

Differences in profitability indicators for wheat and sugar beets allow us to make a suggestion the areas under sugar beets might be replaced by wheat in the future because of the climatic conditions in Estonia, which are rather unfavourable for sugar beets.

Some preference might be given to the milk production as regards to the livestock products. Especially if to compare the producer prices in Estonia with those in the EU (represented by Finland and Sweden), which allow us to assume some increase in Estonian milk prices, while pork prices already are close to the EU level, but quality of beef is lower as in the EU and does not give indications that level could increase in Estonia.

3.3.2 Market Share Indicators

3.3.2.1 Definition and Scope

A host of different indicators is used in the literature to measure competitiveness based on market information. These include e.g. production, export and import shares for the agricultural and food sectors in total, and/or for selected agricultural products. The calculation of these very simple indicators seems, however, to be less appropriate, since competitiveness is a relative measure. Absolute production and market shares thus say little about the competitive position of a sector/subsector in an economy. In order to yield a reliable result, it would therefore have to be calculated relative to other sectors. This is done in more sophisticated and comprehensive measures of international competitiveness (see e.g. Balassa, 1989; Scott and Vollrath, 1992; Vollrath, 1990) such as the:

- Revealed Relative Comparative Advantage Export Index (RXA);
- Revealed Relative Import Penetration Index (RMP);
- Revealed Relative Trade Advantage Index (RTA).

The RXA (RMP) is defined as a country's export share (import share) relative to all other countries' exports (imports) of a specific product category as a percentage of a country's export share (import share) relative to all other countries exports (imports) of all commodities but the considered commodity. The formulas for these two indexes are given below:

$$(1) \qquad RXA_{ij} = (X_{ij} / \sum_{l,l\neq j} X_{il}) / (\sum_{k,k\neq i} X_{kj} / \sum_{k,k\neq i} \sum_{l,l\neq j} X_{kl})$$

$$(2) \qquad RMP_{ij} = (M_{ij} / \sum_{l,l\neq j} M_{il}) / (\sum_{k,k\neq i} M_{kj} / \sum_{k,k\neq i} \sum_{l,l\neq j} M_{kl})$$

In formula 1 (2), X (M) refers to exports (imports) and the subscripts i and k denote the product categories, while j and l denote the country categories. The size of the result indicates the degree of competitiveness. Values for RXA (RMP) above 1 suggest that the country has a revealed comparative advantage (revealed comparative disadvantage) in the specific product category, whereas values below 1 point to revealed comparative disadvantages (revealed comparative advantages).

More complex than the RXA and the RMP is the Relative Trade Advantage Indicator first used by Scott and Vollrath (1992). This index gives the difference between the RXA and the RMP.

$$(3) \qquad RTA_{ij} = RXA_{ij} - RMP_{ij}$$

The competitive advantage revealed by this indicator is implicitly weighted by the importance of the relative export and the relative import advantages. Hence, it is not dominated by extremely small export or import values of the commodity considered. A positive value indicates a competitive advantage, and a negative one a competitive disadvantage.

While the RXA and the RMP indexes are exclusively calculated using either export or import values, only the RTA considers both export and import activities. From the point of view of trade theory, this seems to be an advantage. Due to the growth in intra-industry and/or entrepot trade, this aspect is becoming increasingly important (Frohberg and Hartmann, 1997).

The importance of using an indicator that considers exports and imports simultaneously can be easily demonstrated by looking at the RXA and RTA values for chocolate in Estonia in Table 3.17. The RXA value for this product reveals a value of 3.9 in 1995, thus indicating a high level of competitiveness for this product. However, the RTA value only amounts to –0.9, thereby pointing towards a lack of competitiveness for this product. What is the reason for these contradicting results? The answer is rather obvious. Intra-Industry Trade was obviously important in the Estonian chocolate market in 1995, amounting to 80 %. Although Estonia exported quite large quantities of chocolate it was even a more important importer of this commodity, as is revealed by the high relative import penetration value of 4.8. Therefore, in considering both exports and imports the RTA is a much better and more comprehensive measure of competitiveness.

Finally, it should be pointed out that market share indicators measure competitiveness only on the grounds of observed and possibly distorted market data. Thus by interpreting the indicators such intervention needs to be taken into account.[4]

4 For a discussion of these indicaes see Frohberg and Hartmann (1997).

Table 3.17:

Measuring Competitiveness in Estonia and the EU-15 based on the Revealed Relative Export (RXA), Import (RMP) and Trade Advantage Index (RTA) in 1995

Reference Product Group: All Merchandise Trade

Product or Product Group	Estonia			European Union		
	RXA	RMP	RTA	RXA	RMP	RTA
Bovine cattle	0.1	0.0	0.1	1.7	1.1	0.6
Sheep & goats	0.1	0.0	0.1	0.3	0.5	-0.2
Pigs	0.8	0.1	0.7	2.6	2.3	0.2
Beef & veal	0.4	0.1	0.3	1.5	1.3	0.1
Mutton & goat	0.0	0.0	0.0	0.8	2.8	-2.0
Pigmeat	0.1	0.5	-0.5	2.9	1.5	1.4
Poultry meat	1.7	2.5	-0.9	1.1	0.9	0.2
Bacon & ham	0.4	0.1	0.3	13.2	10.3	2.9
Sausages	4.1	1.7	2.5	2.1	1.6	0.5
Meat, prepared	12.4	4.0	8.4	3.9	1.7	2.2
Milk, fresh	0.8	1.2	-0.4	19.4	9.9	9.4
Milk, dry	15.6	2.6	13.0	2.6	0.9	1.7
Butter	20.2	4.4	15.7	4.9	3.5	1.5
Cheese	2.7	1.0	1.7	7.7	3.9	3.8
Eggs in shell	0.4	0.5	-0.1	2.8	1.6	1.1
Wheat	0.0	0.1	-0.1	0.6	0.4	0.2
Wheat flour	0.5	6.1	-5.5	2.0	0.2	1.8
Barley	0.1	2.5	-2.5	2.2	0.9	1.2
Rye	0.0	5.2	-5.2	10.3	0.7	9.6
Potatoes	0.7	0.1	0.6	3.7	3.5	0.2
Soybeans	0.0	0.1	-0.1	0.0	1.5	-1.5
Sunflower seed	0.0	0.2	-0.2	0.7	4.3	-3.6
Rape/mustardseed	1.8	0.0	1.8	0.5	1.4	-0.8
Tomatoes	0.0	1.5	-1.5	2.7	2.7	0.0
Onions	0.0	1.6	-1.6	0.8	0.9	-0.1
Apples	0.0	2.0	-2.0	1.4	1.8	-0.4
Grapes	0.0	0.9	-0.9	1.2	1.5	-0.3
Wine	0.3	2.0	-1.8	8.7	2.5	6.2
Beer	0.2	1.5	-1.4	2.5	0.8	1.7
Sugar, total	0.5	2.4	-1.9	0.7	0.4	0.2
Soybean oil	0.1	0.5	-0.4	0.4	0.1	0.2
Sunflowerseed oil	0.5	1.9	-1.4	0.6	0.4	0.2
Rape/mustard oil	2.7	11.4	-8.7	2.8	0.6	2.2
Chocolate	3.9	4.8	-0.9	5.0	2.1	2.9
Soybean cakes	0.0	0.5	-0.5	0.3	1.7	-1.4
Sunflower cakes	0.0	4.1	-4.1	0.6	5.9	-5.3
Rapeseed cakes	0.0	0.0	0.0	0.9	1.7	-0.8
Margarine	9.9	19.0	-9.1	2.6	0.7	1.9
Other Agr. Prod.	0.3	0.8	-0.5	0.5	0.7	-0.3
Non Agr. Prod.	1.0	0.9	0.1	1.2	1.1	0.2

Source: Own calculation based on data from FAOSTAT

3.3.2.2 Revealed Comparative Advantage of Estonia in Agricultural and Food Products

RXAs, RMPs and RTAs have been calculated for Estonia and the EU-15 for 39 agricultural raw and processed products/product groups. As a reference group in the analysis all merchandise trade has been used. The indices have been calculated for 1993 to 1996. However, strong statistical irregularities were prevalent at the beginning of the transition period. For this reason even Estonian trade data for 1994, and possibly also for 1995, have to be treated with some caution, since imports and re-exports were not always considered in a systematic manner. Since the first outcome of the 1996 FAO trade showed inconsistencies with respect to the EU as well as the Baltic trade data, Table 3.17 only summarises the results for 1995. The discussion in this section will mainly concentrate on the RTA, since this indicator implicitly covers the other two already.

The RTA values, taking first all commodities as a reference group, show a quite heterogeneous but not unexpected picture. Table 3.17 reveals that for most animal products the indicator is higher than for crops or for processed crop products. This very general result might be explained by the unfavourable climatic and soil conditions in Estonia. Plant production has a natural comparative disadvantage; e.g. in Estonia the poor climatic condition limit the production of winter crops and also the quality of crop production. Most grain can only be used for feed but are less suitable for human consumption.

The positive RTA values for all livestock, meat and meat products but pigmeat and poultry meat hint at a competitive advantage for these products. High positive values are especially revealed for processed meat products (sausages and processed meat). The EU reveals as well positive RTA values for most livestock, meat and meat products. In the case of the EU the only exception is sheep and goats as well as the meat of these products.

Positive RTA values are presented for different kinds of milk products in Table 3.17 for both Estonia and the EU. This result can be explained with the favourable natural conditions and the high percentage of pasture land in total agricultural land in Estonia, while it is mainly the result of high protection for these products in the EU. The negative albeit small value for fresh milk by high positive values especially for the processed milk products dry milk and butter reveals that Estonia obviously imports fresh milk that is processed in the local dairy industry. This indicates that the Estonian dairy industry must be very competitive compared to the respective industry in the neighbouring countries.

The RTA values are negative for all crops and processed crop products but potatoes and rapeseed in Estonia and the importance of these two exceptions in trade of Estonia is rather small. The picture is somewhat more heterogeneous for the EU; for all grain, for sugar, wine, beer and chocolate as well as for vegetable oils and margarine positive RTA values are revealed in Table 3.17 while the opposite holds for all other crops.

It is interesting to note that the RTA values in Table 3.17 indicate a competitive advantage for rape/mustardseed while a high negative value is revealed for rape/mustard oil. The reason is that Estonia has only one oilseed processing plant that is, however, suitable only for basic processing. Thus the raw products are in general exported, e.g. to Finland or Denmark for refining and the processed products are then reexported. With respect to sunflower seed and soybeans as well as the processed product oils and cakes out of these products the numbers in Table 3.17 are negative. Climatic conditions are in these countries for the production of this seed not favourable and are a driving force behind this result. The same holds for fruits and vegetables. While the

RTA values are also negative for oilseeds and oilcakes, positive values are revealed for the processed products oil and margarine in the EU. The latter might have two reasons. First, in this sector, tariff escalation is a fact in the EU; thus the nominal and effective protection rates increase with the degree of processing. Second, productivity in the oil-processing industry seems to be quite high.

For all fruits and vegetables considered in Table 3.17, negative RTA values are revealed for Estonia as well as for the EU, although in general the indicated degree of competitive disadvantage seems to be more pronounced in the Baltic country. The indicator also reveals negative values for wine and beer in Estonia, while these products have a competitive advantage in the EU. The aggregate of those agricultural products not covered in the product list reveal negative RTA values in Estonia and in the EU.

Finally, it should be noted that the aggregate non-agricultural products in Table 3.17 reveals positive albeit small RTA values in the Baltic country and the EU. This result indicates that the agricultural sector as a whole must have a revealed comparative trade disadvantage compared to total trade.

When interpreting the results presented in this section it has to be kept in mind that Estonia is still in a transformation process, and is therefore experiencing strong shifts in competitiveness, even from year to year. Thus the results have to be treated with caution and can only be indicative of the competitive position of Estonia in the agrofood sector in 1995.

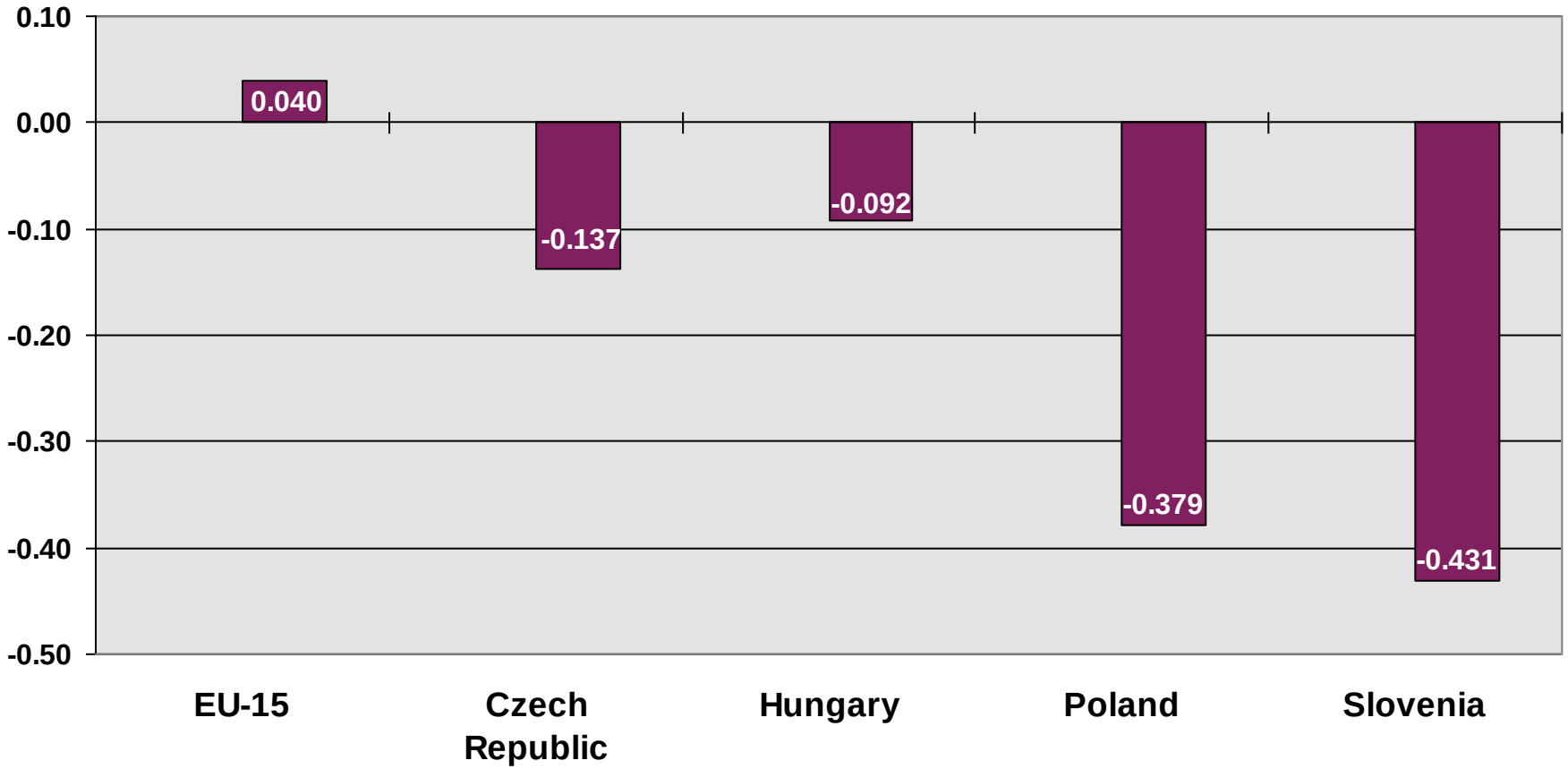
3.3.2.3 Overall Bilateral Complementarity in Trade Advantage between Estonia and the EU as well as between Estonia and future EU member states

The competitiveness of the agricultural and food sector in Estonia after accession to the EU very much depends on the similarity or complementary structure of agricultural trade advantages between Estonia on the one hand and the EU on the other hand. For this reason the index of Overall Bilateral Complementarity in Trade Advantage (OBC) between the EU and Estonia is calculated. The OBC index is the negative correlation between the RTA values for Estonia and the corresponding figures for the EU. The index ranges between -1 and 1. Negative values indicate high competitiveness between this country and the EU, since advantages exist in the same product categories. In contrast, positive values point to a complementary relationship in the competitive structure. The OBC amounts to 0.04 for 1995 (see Figure 3.1). Given this very small positive numbers there is neither a clear indication that competitiveness nor that complementarity will determine the trade relationship between Estonia and the EU after the accession of the former to the EU.

In December 1997 the EU Council of Ministers confirmed the proposal of the EU Commission to start negotiations for accession with the Czech Republic, Estonia, Hungary, Poland and Slovenia. Thus Estonia will be in the first round of member countries. Therefore not only the complementarity or competitive in trade relations between the EU and Estonia matters after the enlargement but also between Estonia and the other new member countries (NewMCs), since free trade will hold in the enlarged Union of 21.

Figure 3.1 reveals that the OBC between Estonia and the NewMCs is negative in all cases, thus pointing to the fact that competitiveness rather than complementarity will determine the trade relationship between Estonia on the one hand and the NewMCs Czech Republic, Hungary, Poland and Slovenia after the accession of all five countries to the EU. Especially high negative values are revealed in combination with the NewMCs Slovenia and Poland.

Figure 3.1: Overall Bilateral Complementarity Index in Trade Advantage between Estonia and the EU as well as between Estonia and the NewMCs in 1995



Source: Own Calculations based on FAOSTAT

At this point it should be noted that the analysis so far can only give a first indication with respect to the possible competitive pressure for Estonia after an accession. In addition it has to be considered that Estonia is of all considered countries the one with the far most liberal agricultural policy. This holds, although an increase in protection took place in 1997. Thus after an accession policies have to adjust to a joint level. This implies that protection in the EU and the other countries will have to be reduced and/or protection in Estonia will rise. This adjustment will increase the competitiveness of the Estonian agricultural sector relative to the EU and the other NewMCs. On the other hand the Estonian food industry might be negatively affected by this development, since it will no longer benefit from relatively low raw material prices.

3.3.3 Agricultural and Food Sector Model

A model was used for analysing the development of production and consumption of agricultural products up to the year 2005 and three policy scenarios regarding the impact of three policy options with regard to Estonia's accession to the EU. This model was developed at the Institute of Agricultural Development in Central and Eastern Europe (IAMO), Halle. It adapted for this purpose to conditions prevailing in Estonia and the other two Baltic Countries within the framework of this project (Frohberg et al., 1998). The model is calibrated to the year 1996. The outcomes of the three scenarios are compared with the results of a base line projection called 'BASE'.

In the following, Estonia's situation as regards production and consumption of agricultural commodities in 1996 is described. These data are uased to calibrate the model. The calibration procedure and the model structure are explaied in Frohberg et al (1998) and are not further elaborated on in this report. Thereafter, assumptions regarding the base run and the three scenarios are discussed. The last part of this subsection contains an overview of the response of production and consumption to the policy changes represented by these scenarios.

Supply and demand schedules in 1996 used for calibrating the model

In Table 3.18 quantities supplied and demanded of Estonian agriculture and prices of agricultural products in the year 1966 are depicted.

Table 3.18: Quantities of supply and demand and prices in 1996

	Supply	Demand	Farm gate price	Demand price
	1000 mt	1000 mt	EEK/kg	EEK/kg
WHEAT	101.20	71.80	2.04	2.40
CGRAIN	541.33	79.00	1.86	2.00
POTATO	500.20	213.40	1.70	3.00
OILS[1)]	4.00	10.70	7.40	17.30
SUGAR[2)]	0.33	40.00	2.85	7.30
VEGETABLE	79.10	88.90	4.89	6.00
MILK	674.80	390.00	2.53	4.50
BEEF	22.10	27.90	18.88	27.00
PORK	31.70	44.00	21.60	30.00
EGGS	17.69	17.10	15.28	19.00
POULTRY	4.30	7.60	22.17	25.00
MUTTON	0.50	0.50	16.09	18.00
FWHEAT	29.40		1.79	
FCGRAIN	462.33		1.70	
FPOTATO	192.00		1.20	

1) oils refers to rape seed. The amount of rape seeds has been recalculated into oil.

2) [2)] sugar refers to raw sugar into which sugar beet was recalculated.

Additional data for 1996 required as input by the model are:

- Agricultural labor force consisted of 60000 persons of which half were engaged large-scale enterprises and the remaining worked on family farms. The average salary per year was 23560 EEK.
- the population was 1450000 inhabitants.
- Average income per capita in a year was 16954 EEK.

In Table 3.19 initial values for own price elasticities of supply and demand and income elasticities for Estonia are presented. They are adjusted in the calibration according to supply and demand in 1996 and theoretical conditions. The latter ones are used in the simulations.

An assessment of elasticities for Estonia is quite difficult because time-series can only be used from 1993 onward, i.e. the year when Estonian kroon was excepted as a legal tender. Besides being rather short the use of time-series is also complicated because after the Estonian kroon came into force the inflation was very high at the beginning. Therefore, elasticities were taken

considering studies carried out for somewhat similar countries (Finland, FRG) and then adjusted according to expert opinions.

Table 3.19: Own Price Elasticities of Supply and Demand, Income Elasticities

	Supply	Demand	Income
WHEAT	0.3	-0.05	0.050
CGRAIN	0.4	-0.02	0.050
POTATO	0.4	-0.10	0.005
OILSEEDS	0.4	-0.20	0.020
SUGAR	0.1	-0.40	0.020
VEGETABLE	0.1	-0.40	0.200
MILK	0.5	-0.20	0.005
BEEF	0.4	-0.50	0.200
PORK	0.6	-0.50	0.200
EGGS	0.4	-0.30	0.200
POULTRY	0.5	-0.40	0.200
MUTTON	0.2	-0.10	0.200
FWHEAT	-0.2		
FCGRAIN	-0.4		
FPOTATO	-0.1		

(1) 3.3.3.1.1 Assumptions regarding the base run for the year to 2005; 'BASE'

It implies that in the nearest future the Baltic countries will not join the EU. It was assumed domestic farm gate prices will be adjusted relative to the world market prices. Changes of the structure of world market prices are taken from studies of OECD. It is assumed that the total amount of government support measures will increase in 2005 differently from country to country. The relative processing margins between domestic farm gate and retail prices (ratio of retail to farm gate prices) in 2005 are assumed to remain at the level they reached 1996.

Assumptions for the base line scenario made for Estonia:

- Population growth is zero.
- Annual growth rate of GDP is 6 %.
- Rates of autonomous technical progress and habit changes

The possible development of agricultural production in Latvia has to be taken into account for making the forecasts about supply and demand on Latvian domestic market, as well as for analysing the competitiveness of domestic products on European market. Agricultural production will develop independently owing to the development of technical progress, accumulated production potential in Latvia and gradual transition to the market economy. The assumptions on the *Growth rates of technical progress* in different sectors of Latvian agriculture are reflected in **Table 4.3**.

It was assumed that there will be no changes in *consumers' preferences* during the time period 1996 until 2005.

3.3.3.2 Description of the Scenarios

Changes in the price levels cause essential shifts in the relationships between supply and demand on internal and external markets. At the same time the ratio between world, European and domestic prices and certain protection level for domestic producers and consumers has significant effect on development of agricultural production, trade policy and competitiveness of products on domestic and European markets. In order to estimate the possible consequences of joining the EU, in respect to competitiveness, four main scenarios with regard to price development were designed. These price scenarios are for all three Baltic countries the same and, therefore, the main assumptions determining these scenarios are elaborated on only in this section.

(2) 3.3.3.2.1 The EU scenario; 'EU'

The accession of Baltic countries to the EU will be assumed. In this case, domestic farm gate prices will move towards those prevailing in the EU, otherwise domestic producers will not be able to compete with other EU producers. Government subsidies, which were provided in the base scenario are kept at that same level, because these national subsidies could be used with the aim of supporting farmers' income at least in the beginning of accession period. According to this scenario EU farm gate prices will change adjust somewhat to world market prices assumed to prevail in that year. The processing margin (difference between farm gate and retail prices) in 2005 will be in absolute terms the same as in the base run for that same year; i.e. the relative processing margin Such similarities in absolute margins between the two above mentioned scenarios is based on the assumption that this price difference will not change considerably during the next 9 years.

(3) 3.3.3.2.2 "Agenda 2000" scenario; 'A2'

It is based on the same assumption as the scenario 'EU' about joining the Union. However, EU farm gate prices for such products as grain, beef, milk, eggs, pork and poultry is replaced by lower prices according to incentives considered in the Agenda 2000 or consequences, which this price decrease is able to cause. There is a national government support here as well as in the previous EU scenario. At the same time the mechanism of determination of EU farm gate prices for year 2005 will be the following:

$$FGPEU_{2005} = \max\left\{PW_{2005}, FGPA2_{1996}\right\}\forall i \text{, where}$$

- i - type of product;

PW - world market price;

$FGPEU$ - average level of farm gate prices in the EU

$FGPA2$ - average level of farm gate prices according to Agenda 2000.

This equation explains the assumed influence of world market and "Agenda" price levels on the level of farm gate prices in the scenario 'EU' in 2005. Whichever of the two prices - the world market price or that of Agenda 2000 - will be chosen to determine the level of EU farm gate price for the particular product .

But absolute margin between farm gate and retail price for 2005 will be the same as in the base run and the second scenario for the same year.

(4) 3.3.3.2.3 "Free World Market" scenario, 'FWM'

Under this scenario it is assumed that farm gate prices in the EU will be equal to the world market prices and any type of government support will be abolished in 2005. In that case incentive prices will be equal to world market price as well. The absolute level of processing margins in 2005 will be kept as in the previous scenarios.

The same growth rates of technical changes and annual changes of world market prices were used for all the four scenarios. This makes it easier to contribute changes in production between base run 'BASE' and any other scenario simulaiton to policy adjustments. Likewise, competitiveness can be better judged if only policy alterations are impacting on the system. Howeever, this does not mean that the authors are not aware of the endogeneity of technical change. Changes in policy may very well induce adjustments in the techniques employed.

In Tables 3.20 incentive prices assumed for the three scenarios are presented. They are based on farm gate prices to which government is added as specificied in the PSEs in form of direct transfers, input subsidies and general support. These prices are assumed to represent the incentive strucure on which farmers base their production decisions.

Table 3.20: Incentive prices assumed for the three scenarios in 2005, in EEK/kg

	Producer incentive prices in scenario		
	'EU'	'A2'	'FWM'
WHEAT	2.13	1.81	1.99
CGRAIN	2.04	1.74	1.75
POTATO	1.28	1.28	1.28
OILS	7.10	7.10	7.10
SUGAR	7.87	7.87	7.07
VEGETABLE	3.41	3.41	3.41
MILK	4.87	4.38	2.58
BEEF	45.44	36.35	20.39
PORK	22.86	20.58	16.70
EGGS	13.06	11.76	12.75
POULTRY	14.20	12.78	14.20
MUTTON	20.50	20.50	20.50
FWHEAT	1.46	1.24	1.42
FCGRAIN	1.46	1.24	1.31
FPOTATO	0.74	0.74	0.64

In Estonia government support is going to be provided for grain and milk producers as compentation per ha and per head. The support is 500 EEK per ha of grain if the arable land exceeds 10 ha and the support per cow is 1000 EEK if milk production is larger than 3800 kg. The preliminary agreement was to give agriculture 90 mill. EEK for that purpose of which 60 mill. EEK would be used for supporting grain growing and 30 mill. EEK for supporting milk production. In the course of discussing the budget the support for agriculture was increased by a 100 mill. more EEK but it is not clear yet what kind of agricultural products will be subsidised by that.

3.3.3.3 Analysis of the simulation results

(5) 3.3.3.3.1 Output

In Table 3.21 supply of 1996 and the supply of 2005 are given according to scenarios chosen.

Table 3.21: Quantities of supply, in thous. mt except for Rest of Agricultural Output (RAO) and Rest of Variable Input (RVI) which are in mill. EEK and labour which is in thous. heads[1)].

	1996	Scenarios			
		'BASE'	'EU'	'A2'	'FWM'
WHEAT	101.20	119.14	110.79	106.82	110.16
		17.7	-7.0	-10.3	-7.5
CGRAIN	541.33	643.17	557.28	504.56	552.59
		18.8	-13.4	-21.6	-14.1
POTATO	500.20	579.01	460	468.38	470.2
		15.8	-20.6	-19.1	-18.8
OILS	4.00	4.44	4.56	4.55	4.76
		11.0	2.7	2.5	7.2
SUGAR	0.33	0.4	0.42	0.43	0.44
		21.2	5.0	7.5	10.0
VEGETABLE	79.10	86.14	72.88	74.76	82.66
		8.9	-15.4	-13.2	-4.0
MILK	674.80	811.3	1206.84	1142.02	968.72
		20.2	48.8	40.8	19.4
BEEF	22.10	24.99	36.8	33.46	27.35
		13.1	47.3	33.9	9.4
PORK	31.70	36.52	26.91	28.01	31.81
		15.2	-26.3	-23.3	-12.9
EGGS	17.69	20.25	17.73	19.41	19.41
		14.5	-12.4	-4.1	-4.1
POULTRY	4.30	4.66	2.54	2.49	3.67
		8.4	-45.5	-46.6	-21.2
MUTTON	0.50	0.52	0.5	0.5	0.56
		4.0	-3.8	-3.8	7.7
RAO	1401.64	1375.6	1120.33	1454.18	1624.8
		-1.9	-18.6	5.7	18.1
FWHEAT	29.40	38.49	42.6	40.8	38.71
		30.9	10.7	6.0	0.6
FCGRAIN	462.33	580.59	660.01	667.23	625.69
		25.6	13.7	14.9	7.8
FPOTATO	192.00	256.67	236.7	238.63	244.11
		33.7	-7.8	-7.0	-4.9
RVI	3122.99	3715.24	3546.57	3298.58	2905.73
		19.0	-4.5	-11.2	-21.8
LABOR	60.00	47.12	36.32	42.86	59.77
		-21.5	-22.9	-9.0	26.8

[1)] The numbers in the second row below the commodity are changes:
in the column 'BASE' between the the base run and the values in 1996
in the other three columns between the corresponding scenario and the column 'BASE'; in percent

Source. Own simulations

Comparing the BASE-scenario with the quantities produced in 1996 the change of quantities is 11 % in the case of oil, 9 % of vegetables, 8 % of poultry and 4 % of mutton. Among livestock products milk and pork most of all have increased the quantities 20 % and 15 %, respectively.

Production of sugar increases by 21 % though sugar beet growing has more and more decreased in Estonia, one reason is that no sugar factories exist in Estonia. Up to now processing has taken place either in Latvia or Finland.

Comparing the 'EU'-scenario with the 'BASE' the quantities of poultry decrease by 45 %. At the same time the quantities of milk and beef produced rise substantially; by 48 % each. In Estonia, currently one third of beef is being produced due to slaughtering calves, the rest is from culling cows.

The second scenario 'A2' indicates the situation where production of wheat and milk receives subsidies by 60 and 30 mill. kroons, respectively. However, this is not sufficient to provide farmers with the same incentive as if prices according to the scenario 'EU' would prevail and consequently production of both commodities declines somewhat compared to the latter scenario.

In relation to the 'BASE'-scenario supply of wheat, coarse grain decline by about 10 to 20 % in all three scenarios. Oils and sugar change ev3n less. Use of feed grains increases because they become cheaper.

Looking at the quantities of supply it turns out that of agricultural products produced in Estonia milk and beef are competitive but considering the quality of beef only milk would remain competitive.

(6) 3.3.3.3.2 Human consumption

In Table 3.22 the actual demand of 1996 and predictive demand of 2005 are given according to scenarios chosen.

Table 3.22: Human consumption, in thous. mt

	1996	Scenarios			
		'BASE'	'EU'	'A2'	'FWM'
WHEAT	71.80	73.31	76.19	75.98	74.27
		2.1	3.9	3.6	1.3
CGRAIN	79.00	80.2	82.82	82.81	81.44
		1.5	3.3	3.3	1.5
POTATO	213.40	218.11	238.32	238.1	237.94
		2.2	9.3	9.2	9.1
OILS	10.70	11.04	12.15	11.89	11.37
		3.2	10.1	7.7	3.0
SUGAR	40.00	38.17	29.9	30.59	30.44
		-4.6	-21.7	-19.9	-20.3
VEGETABLE	88.90	95.96	117.08	114.27	107.2
		7.9	22.0	19.1	11.7
MILK	390.00	392.02	355.52	360.35	378.47
		0.5	-9.3	-8.1	-3.5
BEEF	27.90	29.85	21.53	23.33	27.23
		7.0	-27.9	-21.8	-8.8
PORK	44.00	53.97	58.73	58.02	59.37
		22.7	8.8	7.5	10.0
EGGS	17.10	19.1	21.17	20.71	19.63
		11.7	10.8	8.4	2.8
POULTRY	7.60	10.2	12.39	12.21	12.11
		34.2	21.5	19.7	18.7
MUTTON	0.50	0.76	0.72	0.73	0.77
		52.0	-5.3	-3.9	1.3

[1)] The numbers in the second row below the commodity are changes:
in the column 'BASE' between the the base run and the values in 1996
in the other three columns between the corresponding scenario and the column 'BASE'; in percent

Source. Own simulations

Observing the scenarios of 'BASE' and 'EU' we can see that more than the others has increased the consumption of vegetables, pork, poultry, mutton and eggs. The demand for meat will increase from 79.5 thous. mt to 92 - 94 thous. mt. Considering the number of inhabitants of Estonia, consumption of meat per person would be 64 kg a year which corresponds to normal quantity levels. Theimportance of pork in the diet is quite high and reflects the preferences of the Estonian consumer.

The quantities of consumption in the calculations are in line with normal diets and can be compared with food consumption of developed countries.

(7) 3.3.3.3.3 Trade

In Table 3.23 the difference between supply and demand is provided which shows the opportunity of export and the need for import.

Table 3.23: Differences between supply and demand, in thous. mt

	Scenarios			
	'BASE'	'EU'	'A'	'FWM'
WHEAT	7.34	-8.00	-9.96	-2.82
CGRAIN	-17.62	-185.55	-245.40	-154.53
POTATO	104.23	-15.01	-8.41	-11.85
OILS	-6.60	-7.60	-7.34	-6.62
SUGAR	-37.77	-29.48	-30.16	-30.00
VEGETABLE	-9.82	-44.20	-39.49	-24.54
MILK	419.28	851.32	781.21	590.26
BEEF	-4.86	15.27	10.14	0.12
PORK	-17.45	-31.82	-30.00	-27.56
EGGS	1.16	-3.45	-1.31	-0.22
POULTRY	-5.55	-9.85	-9.72	-8.44
MUTTON	-0.23	-0.23	-0.23	-0.21

In case of BASE-scenario the shortage of cereals is insignificant, only 1.3 % but in case of EU-scenario it is already 29 %. Speaking about food cereals some part of wheat requirement should surely be imported because hard wheat is not grown in Estonia. In 1996 16.9 thous. mt of wheat and 47.6 thous. mt of wheat meal were imported. At the same time 4.1 thous. mt of wheat meal were exported. Some part of the lacking fodder grain can also be imported but at the same time there should be found possibilities for increasing the competitiveness of our fodder grain growing.

It could be possible to export potato in case of BASE-scenario, in case of EU-scenario the supply and demand will be more or less balanced.

The import of oil will obviously remain in the future, too. Here the situation may change if a processing factory for rape seeds, based on modern technology, will be built and together with it the growing area of rape will be increased essentially.

The import of sugar will obviously remain, too. Much change may cause the building of a sugar factory in Estonia.

In case of BASE-scenario the supply and demand of vegetables are more or less balanced. The great shortage will appear in case of EU-scenario. On the one hand the supply will decrease and on the other hand the demand will increase. The supply does not have to decrease in practice because about half of vegetables is being grown in home gardens and these quantities depend more on other factors than on price. In any case a part of vegetables should be imported because our natural conditions do not enable to compete with the cheap vegetables coming from the South.

Milk production is competitive in our conditions. In case of EU-scenario the supply exceeds demand 3.4 times.

Beef production exceeds demand in case of EU-scenario 1.7 times but in order to export the part which is left over from demand the quality of meat should be improved.

The shortage of pork is over 50 % and even more of poultry. Up to now pork and poultry have been imported, too. In 1996 the meat import was 25.7 and the export 3.3 thous. mt. Thus, in 1996 38 % less meat was produced than consumed in Estonia. In case of EU-scenario 66.8 thous. mt of meat are produced and 93.4 thous. mt consumed, so 28 % of gross demand will remain unrequited.

Mutton production is very low and no improvement can be seen for the time being.

Eggs have also been imported and exported before, in 1996 accordingly 1.3 thous. mt and 0.3 thous. mt In case of EU-scenario eggs have to be imported also in the future.

According to the simulations undertaken and the assumptions made in the various scenarios it is shown that agriculture in Estonia is competitive mainly in milk production even if no government support would be provided. Subsidies would enlarge the list of competitive products.

4 STUDY ON LATVIA

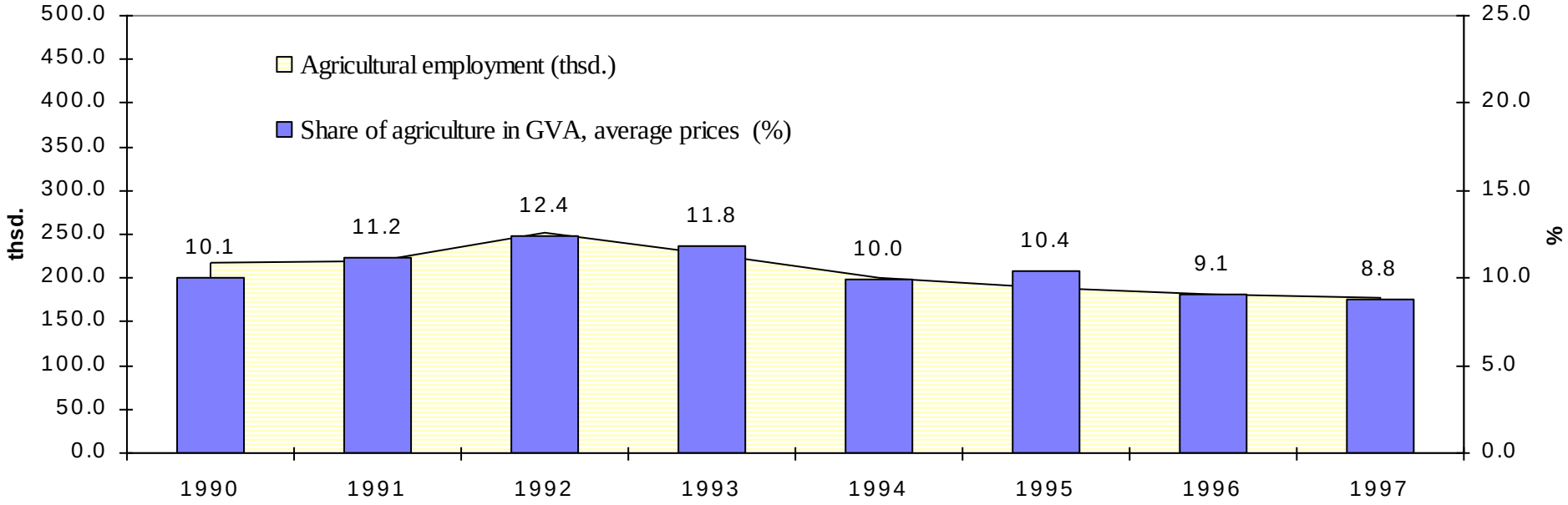
The description of geographical situation, general economic performance and monetary policy is given in the first section. Further the general institutional conditions created by the national government are analysed. Development of agricultural policy, foreign direct and indirect investments are also touched here. Downstream industries and trade are regarded as most important in the agribusiness chain, which effects the performance of agriculture. Domestic demand and the factors leading to structural changes in consumption are analysed afterward. Quantitative aspects of international competitiveness of Latvian agriculture are presented in final section. The issue of production costs is described in profitability studies, presenting some scenarios of cost structure and levels since presently the average productivity is low, but some farms have relative high output and efficiency levels which could improve even further. A comprehensive investigation of these items would be necessary for a more in depth discussion of competitiveness on national rather than on international level. Some results of the possible performance of Latvian agriculture under different policy development scenarios are presented using an agricultural and food sector model.

Latvia is one of the three Baltic countries located at the eastern shores of the Baltic Sea. The country borders with Estonia in the North, Russia and Belarus in the East, Lithuania in the South. Total area is 64,6 thsd. km. It extends 210 km from North to South, and 450 km from West to East. Total length of land border is 1.4 thsd. km, the length of coast line - 0.5 thsd. km. The average elevation amounts to 87 m above sea level. 57 % of the area are under 100 m above sea level, while 40.5 % and 2.5 % are 100 to 200 m and over 200 m above sea level, respectively.

At the beginning of 1996, Latvia had a total population of 2.50 million people. Since 1986 the share of rural population has been fluctuating between 30.7 % and 31.3 %. The density of population is just below 39 inhabitants per square kilometre, which makes the country scarcely populated if compared to the 114 in the EU 8 in 1995[5] .

[5] The Agricultural Situation in the European Union. 1996 report. EC, Brussels-Luxembourg, 1997.

Figure 4.1: Employed persons (annual average) and share of agriculture in Gross Value Added, in %



Source: Statistical Yearbook of Latvia 1997, Central Statistical Bureau of Latvia, Riga, 1997;
Statistical Yearbook of Latvia 1996, Central Statistical Bureau of Latvia, Riga, 1996.

The number of persons employed in agriculture still remains high, 195 thous. in 1996 or about 16.7 % of total employment (see Figure 4.1). The age structure of the agricultural labour force is uneven distributed; one-fifth of employees in agriculture are over 60, and 42 % are over 50. 19 % fall under the age group below 30, and only 9 % are in the age group from 31 to 35[6].

General economic indicators

Transition from the socialist system into market economy as well as disintegration of the Soviet Union and restoration of independence has led to pronounced changes in the Latvian economy in general and the agricultural sector in particular. Compared to 1990 the GDP had dropped by about 50 per cent. 1996 was the first year, when a recovery of the economy started. Growth of real GDP was 2.83 % in 1996 and 5.5 % in 1997 (estimated) (see Table 4.1).

Table 4.1: Latvia: Basic Indicators of Economic Development

	1994	1995	1996	1997f
	(growth rates, in per cent)			
GDP (at constant prices)	0.6	-1.6	2.8	5.5
GDP Deflator	38.3	16.0	14.6	9.5
Consumer prices	35.9	25.0	15.7	8.5
	(indicators in per cent of GDP, unless stated otherwise)			
Central government budget balance	-1.9	-3.1	-1.4	0.2
External debt	9.2	9.2	8.1	8.8
Public debt	14.2	16.0	14.7	15.1
Foreign trade balance	-8.2	-13.0	-15.45	-15.1
Current account	5.5	-0.6	-9.0	-5.2
Unemployment (%, end of period)	6.5	6.6	7.2	7.8
Exchange rate. LVL par USD (end of period)	0.548	0.537	0.556	0.588
Exchange rate. LVL par DEM (end of period)	0.353	0.376	0.358	0.340

Source: Macroeconomic Indicators of Latvia. #1/1997. Central Statistical Bureau. 1997
Statistical Yearbook of Latvia 1997, Central Statistical Bureau of Latvia, Riga, 1997;
Economic Development of Latvia. Report, LR ministry of Economy, Riga, 1996.

The share of agriculture in GDP at current prices grew immediately after the transition process was initiated, and started to decline in 1996 (seeTable 4.2). The reason for this was a deep crisis in other sectors rather than an advanced development of agriculture. Since the beginning of restructuring the economy, output dropped significantly in all sectors. In 1995 agricultural output reached only 46.3 per cent of that of 1990 in constant prices, while the output of industry declined as much as 71 per cent.

[6] CIELAVA Jolanta (1996), "Algots darbaspçks zemnieka sçtâ" (Paid labour on farms), Dienas bizness (Daily Business), 9 December, 1996.

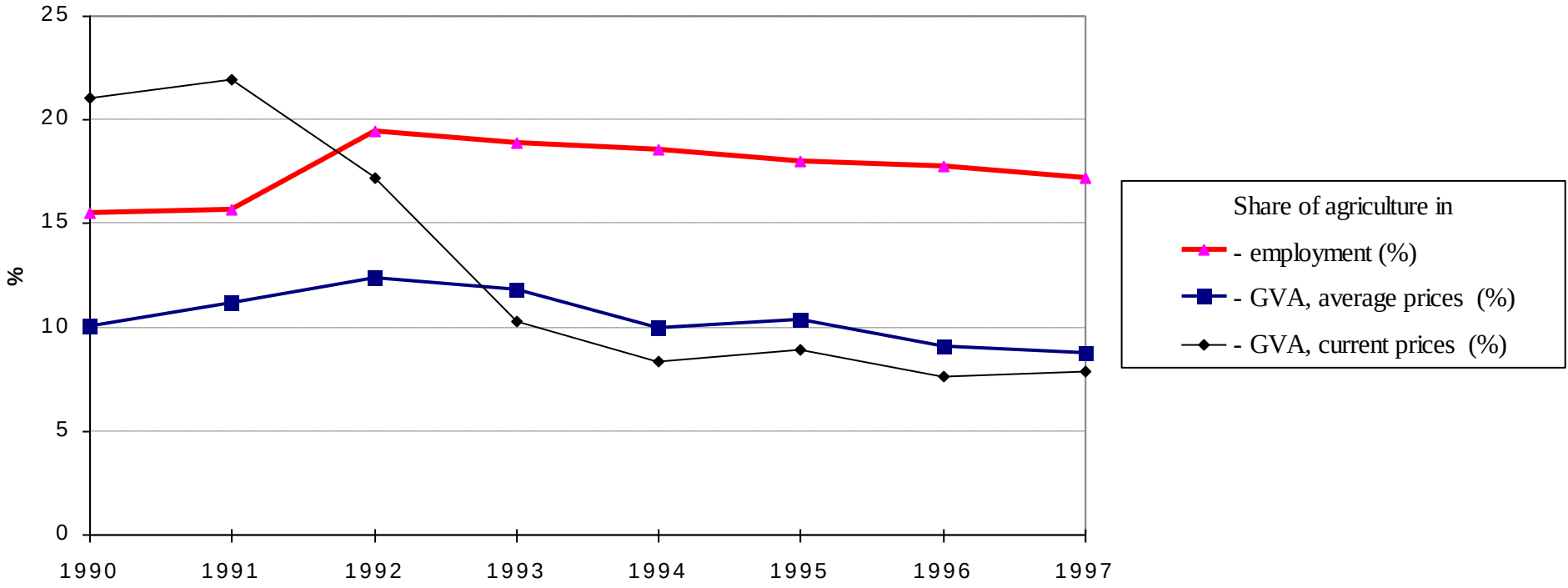
Table 4.2: Structure of the Gross Domestic Product at current prices by type of activity, in per cent

	1991	1993	1995	1996
Gross Domestic Product	100	100	100	100
of which: Gross Value Added by type of activities:	97.1	90.8	86.8	87.1
Agriculture, hunting, forestry, fishing	22.5	10.7	8.5	7.6
Manufacturing, mining and quarrying industry	34.9	21.1	16.8	19.3
Services	32.0	48.3	49.6	50.9

Source: Macroeconomic Indicators of Latvia. #1/1997. Central Statistical Bureau. 1997

The unemployment rate grew as the economy contracted. However, in 1992 the share of agriculture in total employment increased. Restitution of property rights on land and privatisation of the non-land assets which formerly belonged to state and collective farms can be mentioned as a stimulating factor. In the subsequent years the share of agriculture in GDP decreased more rapidly than that in total employment (see Figure 4.2). Indirectly this characterises a relative reduction of income generated in the agricultural sector in general and also per person.

Figure 4.2: Share of agriculture in GVA and in total employment (%).



Source: Statistical Yearbook of Latvia 1997, Central Statistical Bureau of Latvia, Riga, 1997.

4.1 Determinants of Competitiveness

4.1.1 Factor Conditions

Almost 40 per cent of Latvian territory is agricultural land of which 1.7 million hectares are arable land and the remainder pastures and meadows. Some other 43 per cent is covered with forest, small rivers and lakes. The area of agricultural land has considerably decreased if compared with the period before the last war. About 1 million hectares became swamps, forests and shrubbery, are used for urban purposes.

The surface of Latvia is slightly undulating. Compared with the other Baltic countries, Latvia has the most hilly countryside; for example, the highland in Eastern Latvia, the central highland at Vidzeme, branching off to Alûksne and Ape; Western Kurzeme.

The soils in Latvia are mainly sod podsolic, sod gleysolic and gley, their fertility is considerably inferior to that of the best soils of Western Europe (the Netherlands, Belgium, West Germany). The Bauska, Dobele and Jelgava regions have the most fertile lands. Further east, towards Rezekne and Ludza, also along see coast soils become poorer and more stony, but are still able to generate good cereal and grass/legume crops or productive natural grasslands.

The climatic conditions in all the three Baltic countries vary which is one of the reasons for differences in agricultural production. A comparison of climate conditions in the Baltics is provided in Table 4.3. Average annual rainfall in Latvia is about 680 mm. The wettest months are April through September. Severe droughts are rare. Relatively high minimum temperatures permit successful production of winter crops in most years, and relatively low annual maximum temperatures generally guarantee successful production of spring crops. But in general the short growing season presents considerable problems for reaching high yields of grain and forage maize, fruits and vegetables.

Table 4.3: Key climatic factors in the Baltics

Country	Latvia	Estonia	Lithuania
Aggregate active temperatures, above 10^{o} C,	1850	1780	2150
Vegetation period, days, in average	180	176	190
Uneven surface, (% of total area)	33	6	30
% of eroded soils	15	4	13
Reclamation fund, under drainage (%)	86	47	78
Average valuation of agricultural land in points	38	40	44

Source: Boruks A. Common Agricultural Market in the Baltics, - an article in newspaper ‘Lauku avize, September 17, 1996

Insufficient and deteriorating drainage systems are the major reason behind the abandonment of large areas of agricultural land. Currently about 60 per cent of agricultural land (or 1.6 million

hectares) is under drainage introduced under state funding during the Soviet period. Currently the new drainage systems almost are not being developed but those are built consists mainly of ditches. According to the Land Reclamation Division of the Ministry of Agriculture of the Republic of Latvia, it is necessary to reconstruct the drainage systems in the area of 106 thousand ha, drains should be repaired to the total area of 32.7 thousand ha. 5600 km of ditches require capital repairs. Due to the delays in land title registration process and the slow development of land market sometimes it is rather difficult to find the person responsible for proper maintenance of drainage systems. The areas of soils with excess humidity have expanded in size in Latvia, which, undoubtedly, weakens the competitiveness of Latvia even among the three Baltic countries.

Outdated, wasteful cultivation practices, and lack of drainage maintenance are major contributors to the environmental damage caused by Latvian agriculture. This causes severe declines in soil fertility, increasing weed incidence and plant disease. According to studies performed by A. Boruks[7], erosion is also more widespread in Latvia than it is in Estonia and Lithuania.

4.1.2 Firm Strategy, Structure and Rivalry

Also the determinant firm strategy, structure and rivalry encompasses positive as well as negative effects for the competitiveness of Latvian agriculture and the food industry. After the process of land restitution and privatisation a large number of small farms were created. As shown in the number of newly established private farms rose drastically since 1990 while that of state farms gradually decreased since then. Currently, the private sector has the leading position in Latvian agricultural production. Family farms operate 52 % of total agricultural land. Household plots and private subsidiary farms take up 32 %, state farms and statutory companies the remaining 12 %. The average size of family farms is 19.7 ha. However, at present most of them are economically not viable. One reason for this is that the land market in Latvia is not yet well functioning, because the process of land registration takes too long and agriculture does not promise big profits. While the relatively small family farms do not allow to fully exploit economies of scale, they have less internal control and management costs and can react quicker to changes in market conditions. However, many of them lack management capability to operate commercially in a market economy.

A more rapid process of land registration could enhance the functioning of the land market, and, as a result, the production units could become larger and economically more viable, even if prices remain stable. Also a higher land tax could enhance the functioning of the land market, since no economic reason exists for land owners not engaged in agricultural production to sell or rent the land, because there are no real costs related to unused agricultural land while the price of land is relatively law to sell it. The process of development of market oriented farm enterprises is gradual but will continue.

Like the entire economy, the agricultural sector currently undergoes a rather strong structural change This process started with the beginning of transition period. As shown in Table 4.4 the number of newly established private farms rose drastically since 1990 while that of state farms gradually decreased since then. Currently, the private sector has the leading position in Latvian

[7] Boruks, A. Common Agricultural Market in the Baltic's, - an article in newspaper 'Lauku avîze, September 17, 1996

agricultural production. The sown area has increased considerably in family farms, households plots and private subsidiary farms, also their share in total number of animals rapidly went up.

Table 4.4: Arable land and number of animals by type of farm

	1990	1994	1995	1996
Number of farms:				
- state farms	210	95	92	81
- statutory companies	424	656	617	474
- Family farms, households plots and private subsidiary farms	7500[8]	307700	200200[9]	268200
Arable land, in 1000 ha, of which:	1627.0	1194.6	930.2	986.1
- state farms			23.2	
- statutory companies	1482.7*	293.0*	198.8	192.7*
- family farms, households plots and private subsidiary farms	144.3	901.6	708.2	793.4
Share of family farms, household plots and private subsidiary farms in total number of animals, in %:				
- cattle	22.0	66.7	73.7	76.0
- of which cows	29.8	76.4	79.8	80.9
- pigs	14.2	54.6	63.4	63.0
- poultry	9.5	33.0	32.2	34.2

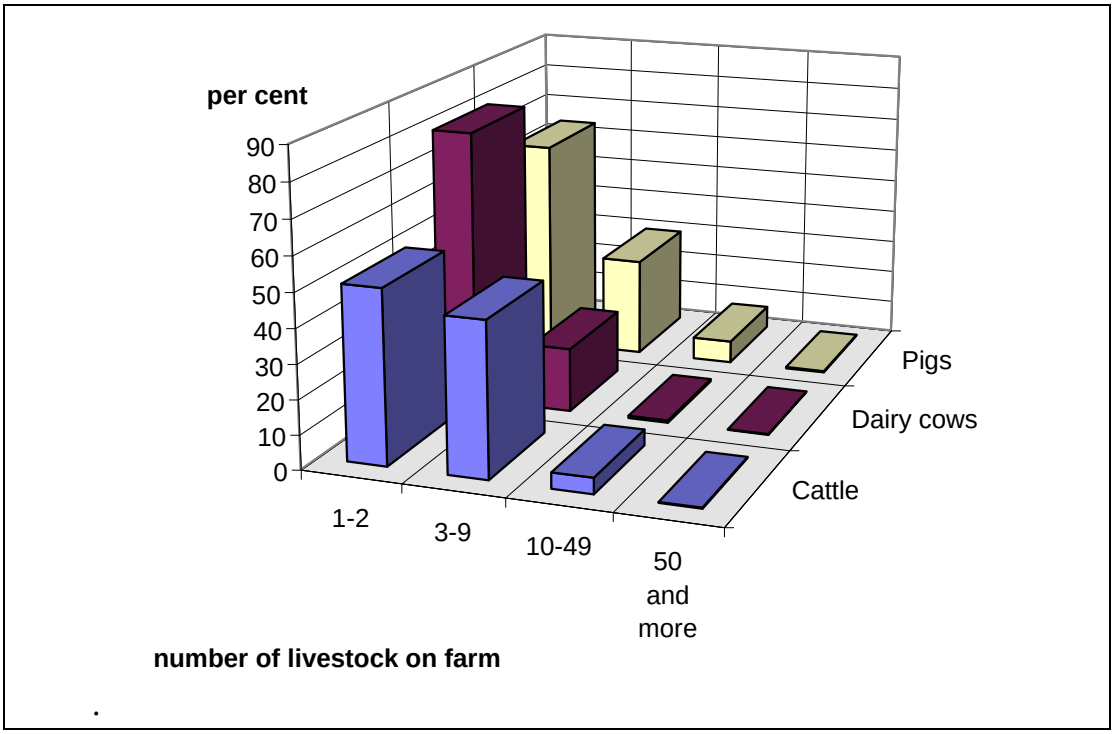
* including state farms

Source: Central Statistic Bureau of Latvia. Agriculture in Latvia, p 7, 14, 32, 34; Statistical Yearbook of Latvia p.195.

Arable land does not provide much insight into extent of livestock production. In this respect, herd size is a better indicator. In Latvia (Figure 4.3), small scale livestock production dominates. About 90 % of total animals is concentrated in herd sizes of 1-9 heads per farm. This holds for dairy cows and cattle as well as for pigs. Even in the EU livestock production takes place at larger scales.

[8] Only peasant farms
[9] peasant farms and household plots

Figure 4.3: Grouping of farms (in %) according to herd size of different animals types, as of July 1, 1996



Source: Agricultural farms in Latvia in the first half of 1996. Statistical bulletin, Riga, 1996.

Competitiveness requires not only to produce at low costs, but also the willingness to explore and expand product varieties and to secure a high quality standard. This is an important factor influencing the competitive position of the Latvian agricultural and food sector negatively compared to the ones in Western Europe.

4.1.3 Demand

Considering the demand conditions in Latvia, a negative influence on the competitiveness of the agricultural and food sector has to be stated. This is due to two reasons. First the purchasing power of the Latvian consumer markets is relatively small and thus the quantity of products that can be sold on the domestic markets. Compared to 1990, total household cash expenditure (per household member and year) in real terms (in 1995 prices) has decreased more than twice (see Table 4.5), which led to significant changes in spending structure. The share of food expenditure increased from 29 % in 1990 to 48 % in 1992. Thereafter, it declined to 44 % in 1995. Beginning with 1996, a new method of calculating expenditure shares was introduced which caused the increase in the food expenditure share to 51 %.

The Baltic Free Trade Agreement signed by Latvia, Estonia and Lithuania will enlarge the markets for the respective firms. Thus, it should be possible to reduce the quantity constraint and better utilise economies of scale in the future. The lower purchasing power, however, has in addition a considerable impact on the structure of food demand. Relatively expensive livestock products and highly processed products are substituted by towards cheaper foodstuffs such as potatoes, vegetables, fruits and cereal-based products.

Table 4.5: Household cash expenditure and the share of spending for various demand categories

PRODUCTS	Unit of measure-ment	1990	1991	1992	1993	1994	1995	1996
Total cash expendi-ture, in current prices	per person and year	11.8	23.5	156.7	320.0	473.6	NA	618.0
Total cash expendi-ture, in prices of 1995	per person and year	1190.2	872.7	553.0	539.7	587.2	471.7	
Share of .... in total expenditure								
food	%	29.4	37.8	48.2	44.4	45.9	44.2	50.9
non-food	%	37.6	35.4	22.8	19.5	21.1	21.2	
housing	%	2.6	1.7	6.1	12.5	13.9	14.1	14.3

Source: Statistical Yearbook of Latvia 1995, Central Statistical Bureau of Latvia, Riga, 1995.
Statistical Yearbook of Latvia 1997, Central Statistical Bureau of Latvia, Riga, 1997.

The data from Table 4.6 show that consumption of meat, fish and other food products of animal origin has decreased relatively more compared to products of crop origin, as cereals, potatoes, fruits and vegetables. It can be observed that since 1994 some stabilisation in food consumption structure has occurred.

Table 4.6: Consumption of food, in kg per capita and year[10]

PRODUCTS	1990	1991	1992	1993	1994	1995*	1996*
Meat and meat products converted into meat: excluding fats and 2nd class edible offal	77.0	69.0	54.0	50.0	48.0	52.0	57.0
Fish & fish products	22.5	18.0	13.0	12.0	13.0	10.8	16.2
Milk and dairy products (converted into milk)	454.0	420.0	370.0	355.0	345.0	327.0	311.0
Eggs (pieces)	259.0	232.0	213.0	210.0	206.0	214.0	197.0
Vegetable oil	7.8	3.8	3.9	6.7	7.3	6.1	8.4
Sugar	48.1	40.5	32.8	36.0	36.0	23.0	32.9
Cereal products	80.1	83.7	90.7	92.3	89.2	89.0	86.0
Fruit and berries	33.0	37.0	34.0	50.0	52.0	28.0	44.0
Potatoes	91.6	97.8	101.0	110.9	108.2	136.0	152.0
Vegetables	69.0	69.0	75.0	71.0	73.0	54.0	97.0

* 1995 data calculated proceed first half-year data, but without second half-year consumption structure change.

** 1996 data calculated by method different of previous years.

Source: Calculations of Prof. V. Pirksts, LSIAE, based on:
Latvia in figures.- State Committee for Statistics of the Republic of Latvia.- Riga, 1994., p.39.
Latvia in figures.- Central Statistical Bureau of Latvia.- Riga, 1995., p.51.
Agriculture in Latvia.- Central Statistical Bureau of Latvia.- Riga, 1995., p.13.
Unpublished materials of Social Statistics Department of Central Statistical Bureau of Latvia.
Household Budget in 1994.- Central Statistical Bureau of Latvia.- Riga, 1995., p.29.
Household Budget in 1995 first half-year.- Central Statistical Bureau of Latvia.- Riga, 1995., p.28.-29.
Report of research Results about Household Budget in 1996.- Central Statistical Bureau of Latvia.- Riga, 1997., p.13.-26.

The quality of demand is the second reason negatively influencing the competitiveness of the Latvian agro-food sector. Compared to West European countries, consumers in Latvia are still less sophisticated. The demand for high quality, a greater variety and healthier products can be expected to rise only with growing income.

4.1.4 Downstream sector

Downstream industries also have gone through a difficult transition process. Different procedures were used for privatising dairy, meat and other processing industries, depending on such factors as tradition, technology and the structure of these enterprises. The privatisation of agricultural processing companies started in 1993 and, apart from a few exceptions, all enterprises completed

[10] according to household budget survey data

this process (Table 4.7). From the few highly specialised state monopolies, existing before transition privatised and restructured companies have emerged, and are facing a strong competition from different actors: other privatised enterprises, newly established private companies, foreign producers and food providers.

Table 4.7: Privatisation status as of January 1, 1996

Groups of enterprises or sectors	Number	of them privatisation	
	in total	completed	initiated
1. Companies to be privatised in compliance with special laws:	184	144	37
• Dairy companies	15	15	
• Meat processing companies	14	11	2
• Bakeries	14	13	
• Grain processing factories	17	14	2
• Agricultural service companies	124	91	33
2. Companies to be privatised according to the general legislation	79	29	20
Total	263	173	57

Source: Economic Development of Latvia. Report. LR Ministry of Economy, Riga, 1996.

4.1.4.1 Dairy sector

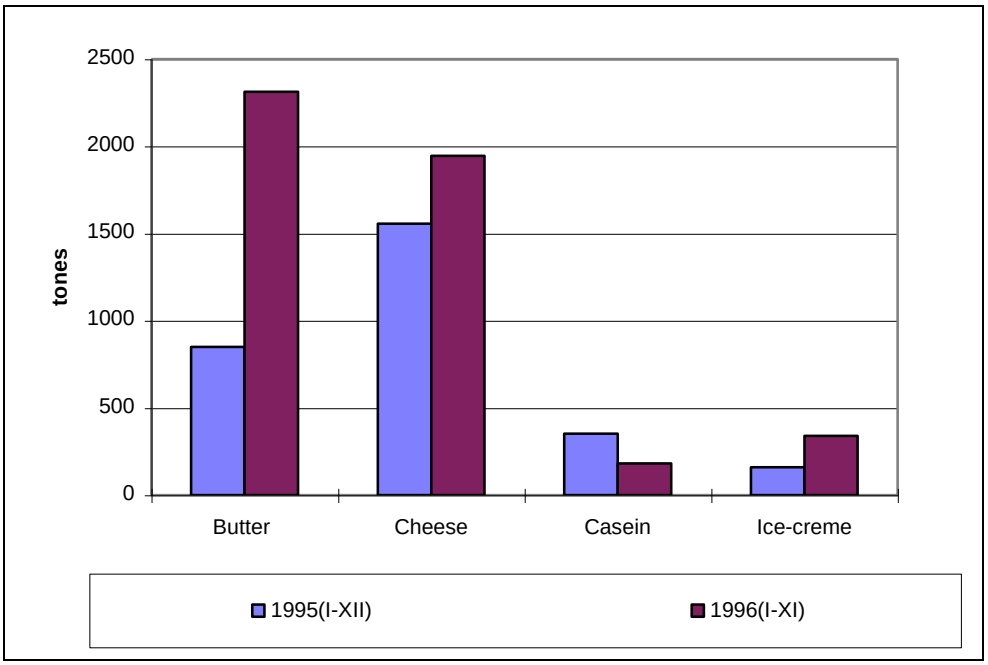
Privatisation of dairy plants was carried out in two stages. milk producers were given the possibility to organise themselves in co-operatives and to take over, free of charge, the small, local dairy enterprises that collect milk and carry out the first stage of milk processing. A number of co-operatives with relatively small processing units was established in this way.

At the second stage, the large centralised dairy plants were privatised. According to the *'Law on Privatisation of Dairy Processing Enterprises'*, which was passed in 1993, they were transformed into joint stock companies with specific quotas set for the distribution of shares: dairy producers' associations were to hold at least 70 %; employees were given no more than 10 %; the remaining 20 % remained in the hands of the state. As the main problem caused by this approach is that milk producers' co-operatives did not only lack capital to restructure and modernise these enterprises, they also had insufficient technical, marketing, and business skills, which is unfavourable for the development of a downstream industry and makes it less competitive.

Another problem exists with the milk production contracts and marketed volumes. They lead to overcapacities of milk processing enterprises. No exact data are available regarding their current utilisation. According to official statistics, volumes of agricultural products sold to processing enterprises during the years 1991-1995 decreased six times. From this figure, one can draw some conclusions as to capacity utilisation. However, it should be taken into account that some of the equipment is worn out and obsolete, and should be replaced with new one, or requires substantial repair.

Nevertheless, the increased competition among dairy plants stipulated efficiency of the whole industry. Dairy products are now exported. Between 1995 and 1996 (see Figure 4.4), dairy export increased considerably, mainly due to improved quality and export promotion programmes.

Figure 4.4: Dairy product export[11]



Source: Developments in Dairy Market in Latvia. Information bulletins N0.1-12, 1995, 1996, Riga.

4.1.4.2 Meat processing

According to the *'Law on Privatisation of State meat Processing Enterprises'*, a different privatisation approach to that in dairy sector was chosen in meat processing sector. Instead of the envisaged preferences for milk producers, an open tender for the holding of the majority of shares was announced for each previously state-owned enterprise. This holding was to be sold to the highest single bidder in an auction.

Similar to the dairy industry, meat processing enterprises had an outdated technology and a low capacity utilisation rate. Sales to processing plants decreased four times over 1991-.[12] meanwhile, many small meat processing companies were created. Though information is not very precise to reach some conclusion due to some of the processing companies don't report their production volumes to the statistics. This tends to conceal real figures.

4.1.4.3 Food Distribution Sector

Timely delivery is a crucial point in the whole agro-food chain. Marketing skills are rather underdeveloped in all the post-socialist countries since distribution rather than trade systems existed before the transition started.

In the domestic market, marketing and distribution problems are more relevant. The large processing and distribution margins have resulted from an insufficiently developed distribution network. In Latvia, the retail system consists mainly of small private shops. A centralised storage and delivery system is missing. Wholesale warehouses deal mainly with imports and their distribution. The main wholesale distributor in rural areas still is the Latvian Union of Consumer

[11] Data comprise only the companies which have joined the LPCS information exchange system.
[12] According to statistics, the sales volumes to processing enterprises include also imported live animals to be slaughtered in Latvia.

Co-operatives. Formerly, it had almost exclusive control over both wholesale and retail of agricultural products in these areas, now their competitors are private companies. This union owns large dry and cold storage facilities, however, it suffers from lack of working capital and high quality management. To some extent, this situation arose because processing companies also have a large share in the wholesale business. This also holds with respect to foreign trade, where processing companies are the main actors.

4.1.5 The Role of the Government

4.1.5.1 Macroeconomic Policies

Macroeconomic policies have an important impact on the competitiveness of the agricultural sector. This holds especially with respect to the exchange rate. In June 1993 a true national currency, the Lat (LVL) was introduced. Since February, 1994, the Lat is pegged to the Special Drawing Rights (SDR). According to the calculations of purchasing power parity indexes carried out by the OECD and Eurostat, Latvian national currency was strongly undervalued (see Table 4.8).

The comparative index of price level, which is calculated by dividing the nominal bilateral exchange rate by the PPP and which shows how much currency of the base country - the Austrian Schilling is taken in this example - is necessary to buy the same quantity of goods and services in various countries, is an important indicator. For Latvia, in 1993 this index was 23 % (29 % for food products, 23 % for clothes and footwear and only 9 % for housing, heating and electricity). This means that the price level of goods with relatively low transport costs is closer to the world price than that of other commodities. As Latvia needs to import a large amount of raw materials, price alignment will take place.

Table 4.8: Results of Purchasing Power Parity calculations

Country	Year	National currency over Austrian Schilling		Exchange rate over Purchasing power parity	Comparative price level
		Nominal exchange rate	Purchasing power parity	a) divided by b)	Austria divided by country value times 100, column c
		a)	b)	c)	d)
Austria		1	1	1	100
Estonia	1993	1.136	0.278	4.092	24
	1994	1.137	0.383	2.968	34
Latvia	1993	0.058	0.013	4.372	23
	1994	0.049	0.017	2.940	34
Lithuania	1993	0.344	0.059	5.854	17
	1994	0.370	0.086	4.297	23

Source: Monthly Bulletin of Latvian Statistics. 1/1996, Riga, 1996

An undervalued currency, on the one hand, adds to the protection of domestic producers (imports are relatively expensive), and, on the other hand, it encourages export (in foreign currency, export prices are relatively low). If differences of inflation are not accommodated through adjustments of the exchange rate, the currency will gradually become less undervalued. According to the classical theory, the international competitiveness of a country's production is undermined if this process of inflation together with a fixed exchange rate continues for some time. However, since Latvia imports most of its inputs for agriculture, such as energy, fertilisers, plant protection chemicals agricultural sector will not benefit from Lat devaluation while the share of its exports will continue to be relatively small.

Favourable conditions for competitive enhancing investment have been created by decreasing inflation rates (see Table 4.9) and a non-deficit budget in 1997. This has led to a significant decrease in interest rates on credits, because state bonds issued to finance budget deficit had interest rates up to 25 % in 1995-96 and no funds were available for credits with reasonable interest rates. In 1997 state bonds were sold with 3 % to 6 % interest rates and more funds became available for credits.

Table 4.9: Inflation as measured by the consumer price index (CPI) as changes

to the previous year, in %

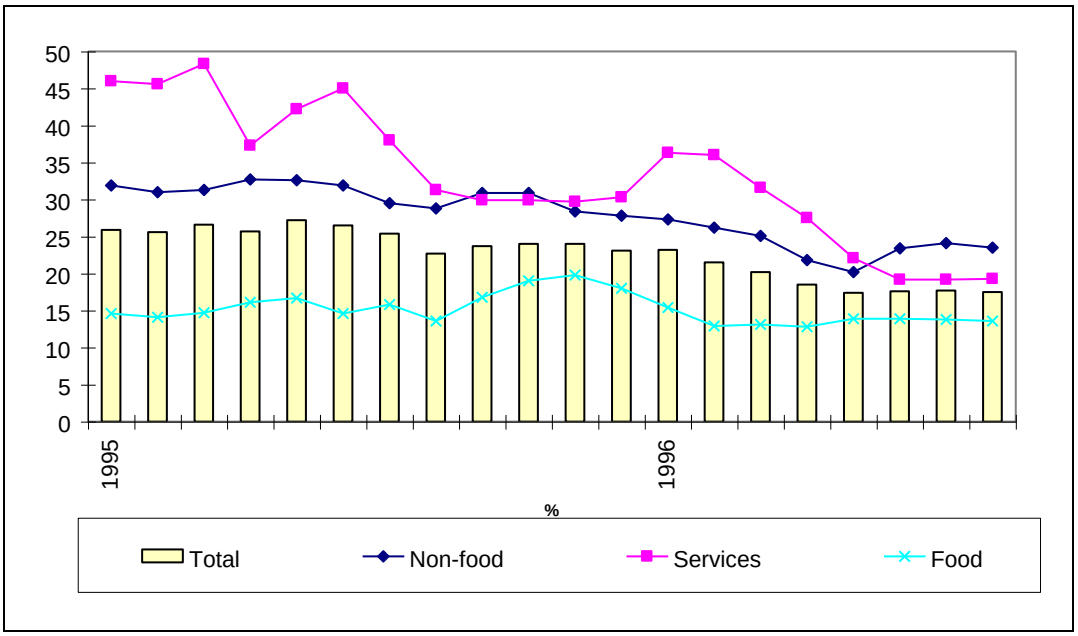
	1992	1993	1994	1995	1996	1997
CPI	958.6	34.8	26.3	23.1	13.1	8.5

Source: State Statistical Bureau

The inflation rate for food products is below the average level (see Figure 4.5). In 1996, prices for such products as butter and fats, fish and fish products, spices, sugar and soft drinks have gone up only by a few per cent. Prices for fresh vegetables and potatoes have even gone down.

Food products belong to the group of products with relatively low transportation costs, are relatively easily traded and, therefore, domestic producers face competition from abroad. As a result the price for these products is comparatively closer to the world market price. In future mainly housing costs and general services as health care, education and transport will be affected by price changes, because for today they have the most regulated prices (e.g. heating, energy, telecommunications, railway, rent) or they are financed from the state and local budget and the level of salaries in these sectors are significantly lower than those in private sector (education, health care). A growth of food prices provided some advantages to the agricultural sector, since both the consumer and producer prices increased. In contrast, the consumption has not changed significantly as the demand for agricultural products is rather inelastic. While the marketing margin was high, the gains for processing enterprises were higher than those for farmers.

Figure 4.5: Increase in consumer prices for goods and services (in per cent of the corresponding month of the previous year)



Source: Monthly Bulletin of Latvian Statistics. 8/1996, Riga, 1996

For 1997 the budget was balanced which led to a significant decrease in interest rates on credits, because state bonds issued to finance budget deficit had interest rates up to 25 % in 1995-96 and no funds were available for credits with reasonable interest rates. In 1997 state bonds were sold with 3 % to 6 % interest rates and more funds became available for credits. Thus this type of policy supported investment in private sector and enhances economic growth of the country.

4.1.5.2 Agricultural Policies

(8) 4.1.5.2.1 Law on Agriculture

The law "On Agriculture", passed on November 8, 1996, specifies the main objectives for the Latvian agricultural policy and the scope of instruments to be used in achieving them. As stated the ultimate aim of the Law is "… to maintain the development of agriculture as one of the sectors in the national economy and to implement a long-term agricultural policy". To accomplish this several main objectives are envisaged:

- the development of an efficient agricultural policy for the transition period until a possible entrance in the EU, to implement necessary structural adjustments in agriculture and to increase its competitiveness in international markets;
- to create preconditions for an environmentally friendly and socially oriented agriculture, for the rational use of natural resources by taking into account regional differences;
- to create preconditions for the development of efficient enterprises of different types to produce competitive products at low cost, to increase agricultural production efficiency;
- to retain employment in rural areas;
- to try to equalise the income in agriculture to the average in national economy;
- to set out the main principles of market regulation in agriculture;
- to foster the development of agricultural science and education.

Some of the objectives could be seen as being mutually contradictory. It is obvious that implementing the law requires compromises. Two main points deserve special mentioning:

1. Priority is assigned to efficiency over equity.
2. Objectives of rural development are an integral part of agricultural policies. Among them are the necessity to create the pre-conditions for retaining employment in rural areas; development of different types of enterprises; a rational and environmentally friendly use of the existing natural resource base.

As in many countries, an overall goal of agricultural policy is to increase income. One way to achieve this is to reduce the agricultural labour force which still is high compared to other developed countries and to increase labour productivity. The latter requires substantial investment.

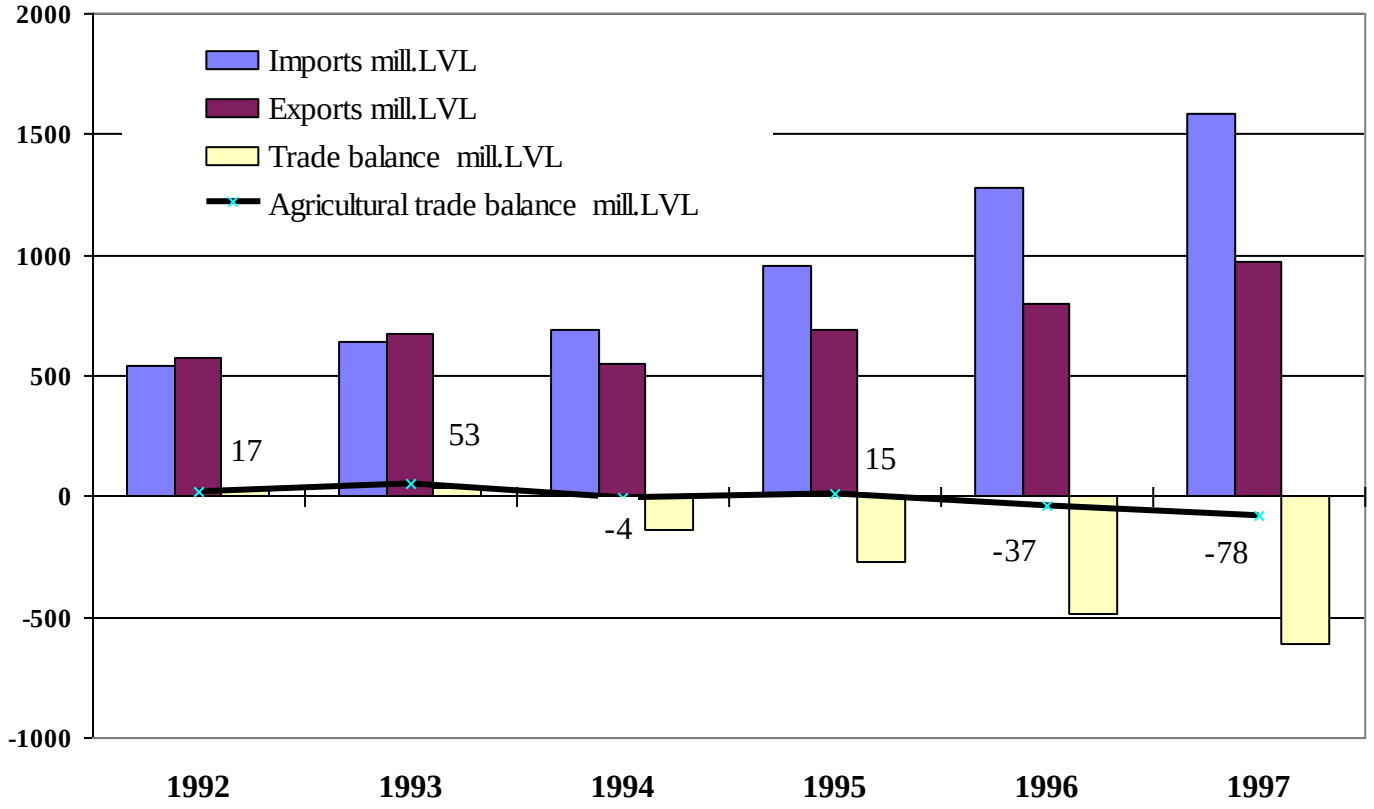
The directions of agricultural policy development are still under discussion, and they are closely connected to the rural development policy, which becomes an essential part also of agricultural policy. While population in Latvia and especially in countryside is very immobile[13], alternative employment opportunities should be created in the countryside.

(9) 4.1.5.2.2 Agricultural Trade Policy

Currently, Latvia has a negative trade balance (see Figure4.6). The same is true for trade with agricultural goods, although some products are more competitive in the foreign market and some less.

[13] According to the Statistics the unemployment rate in Latvia at the beginning of 1996 was 6.6%, while in district of Rezekne - 26%, district of Krâslava - 23.6%. At the same time around the capital Riga unemployment rate was 3.5- 7%. *Administrative districts and major cities of Latvia. 1997. Statistical Yearbook. CSB of Latvia. Riga 1997.*

Figure 4.6: Development of trade balance in Latvia



Source: Statistical Yearbook of Latvia 1995, Central Statistical Bureau of Latvia, Riga, 1995.
Statistical Yearbook of Latvia 1997, Central Statistical Bureau of Latvia, Riga, 1997.

(i) 4.1.5.2.2.1 Trade agreements

Since the beginning of independence Latvia has started to build up rather liberal trade policy on the basis of bilateral and multilateral free trade agreements (Fats). Meanwhile, there are several multilateral and bilateral agreements on trade in agricultural products already signed. Among them Lithuania, Estonia, Slovenia, Czech Republic and Slovak Republic, European Free Trade Association (Iceland, Norway, Liechtenstein, Switzerland) should be mentioned. An agreement on free trade with agricultural products is currently being negotiated with Ukraine.

GATT/WTO

In November 1993 the government of Latvia made a decision to join GATT/WTO agreement. In accordance to this decision all legislation on trade and trade related aspects has been drafted on the basis of the WTO principles.

The strategic objective of Latvia was to become a member of GATT/WTO in 1997, but due to extended negotiation process signing of the agreement in 1998 seems to be more likely. It is too early to discuss the precise content of the accession agreement, but one can be expected. Following the GATT/WTO principles the accessing country has no rights to increase market protection (tariff and non- tariff barriers) and also to start use domestic production support measures ("yellow box"). It means Latvia has no basis to expect to introduce much higher support policies also in agriculture. And in future just the "green box" measures could be used.

European Union FTA

From the existing agreements, the Free Trade Agreement signed with the EU on 18 July 1994, which came into force on 1 January 1995, is the most important one. Half a year later, the Association Agreement between EU and Latvia was signed, and the Free Trade Agreement became an integral part of it. Under this agreement, Latvia has been granted a four-year transition period in which to adjust its non-agricultural economy to be ready for competition in the Western Europe environment, while a six-year transition period has been agreed for agriculture. The European Agreement is considered to be the most important international agreement signed by Latvia, especially given the possibility of its future membership of the EU. But it will also have a major impact on trade between Latvia and the EU in view of the concessions on agro-food products from which both sides will benefit in the coming years.

The Baltic FTA

The Baltic FTA on agricultural and food products is in force since January 1, 1997. Its most important feature is elimination of any import barriers among the three countries.

The next step to be taken is the establishment of the Baltic Customs Union. The importance of it has been acknowledged by the Baltic Assembly in December, 1995. The customs policies being different between the three countries potentially could lead to problems in the future. A common concept used in negotiations about joining the EU and WTO would facilitate the process.

(10) 4.1.5.2.3 Foreign investment

Foreign investment is important not only as a source of capital but also a means of transferring foreign experience, technology and management skills. Since independence was regained a substantial amount of foreign investment has been attracted to Latvia (based on data of the

Development Agency of Latvia, in the middle of September, 1996, this constituted more than 500 million USD).

Foreign direct investment (FDI) in agriculture

The general structure of foreign direct investment in Latvia indicates an extremely low share received by agriculture, which is close to zero (see Table 4.10).

Table 4.10: Foreign investment by kind of activity (thous. LVL and %)

	1992	1993	1994	1995	1996
Total	**22497**	**50295**	**173298**	**274175**	**371528**
of this:					
- Agriculture	0.1	1.8	0.0	0.0	0.1
- Forestry	0.0	1.1	0.1	0.1	0.1
- Food industry (and beverages)	3.2	4.3	11.3	10.1	8.2
- The rest of manufacturing	12.9	13.6	11.3	8.0	7.5

Source: Central Statistical Bureau of Latvia

Several factors may have caused this low share of FDI in agriculture:

- **Ongoing land reform**. Only in 1995 foreigners were allowed to own agricultural land. And after the recent amendments to the law on Land privatisation it can be expected that foreign direct investment will increase also in this sector.
- **Underdeveloped land market**, which does not give clear indications of land price. Those individuals who received land in ownership through restitution and do not farm themselves, lease it rather than sell it in expectations of higher price in the future.
- **Uncertainty on economic perspectives of agriculture**. Natural conditions in the country are not so favourable for recovery of the sector to be able to offset the economic prevalence of other European countries due to support to agriculture, if the state does not provide any support at all. The law "On Agriculture" passed in 1996 and the subsequent medium-term state support programme gives just some indications to farmers and also to possible investors, despite the fact that the actual level of support still remains low.

But there are cases where agriculture also has benefited from FDI. Such a case, is a Latvian farm in which a Canadian company invested in modern grain production technology giving that farm an advantage over local producers.

FDI in the food processing

With a volume of 30.7 mill. LVL (~55 mill. USD) the food industry received a significantly higher level of foreign direct investment than agriculture. Currently, this sector accounts for about 10 % of the total FDI (seeTable 4.10).

Table 4.11: Structure of foreign direct investments in food industry by country (%)

	1993	**1994**	**1995**
EU-12	18.5	13.2	12.5
EU - 3	53.2	12.3	25.2
USA	9.3	71.7	60.2
CIS	5.5	0.4	0.5
CEEC	10.8	0.2	0.1
others	2.7	2.2	1.5
Total (thous. LVL)	2171	19513	27804

There are several successful cases of improving the competitiveness of food producing companies through foreign investment. As an example the company *Baltic Beverages* joining the main Latvian brewery *Aldaris* can be mentioned. Now being a part of the big chain and having introduced modern technology, which guarantees high and stable quality of the product, this Latvian brewery is successfully competing in Latvian and also in Lithuanian market.

Total foreign direct investment in Latvia's food processing industry originates mainly from Austria and those Scandinavian countries belonging to the EU while the rest of the EU member states contributes relatively little (see Table 4.11). This is quite different to the USA from which the largest share of FDI in the food industry originates.

Brewing and baking sectors have been the main beneficiaries of FDI. In most cases, it was investment made by Scandinavian and Austrian companies.

Potato chips and starch are also produced in co-operation with Scandinavian companies, which allowed to build completely new production facilities (in the former case), or to modernise the existing ones (the latter), and to get access to European markets.

Practically no FDI investment has been registered in the milk processing sector so far.

Quite recently some foreign companies have bought the majority interest in the biggest milling (a Swedish company) and meat processing (an Estonian company) enterprises. There are also certain attempts to enter the sugar industry.

Indirect investment

Agriculture benefits from some indirect effects of foreign direct investment elsewhere, which is agreed upon at government level. For example, Denmark supported projects for setting up agricultural advisory centres in Latvia and, alongside with Sweden and Finland, is taking part in the programme "3 plus 3", which envisages providing information and advice to agriculture specialists in the Baltic countries. The agreement between German and Latvian Ministries of Agriculture provides for a long term consultancy work financed by German government.

Regarding investments, the situation is better in the food processing sector. Here, a comprehensive analysis would be useful. The question about domestic and foreign ownership should be discussed. *Porter (1990)* suggests that 'home basis' is the distinguishing feature: 'As long as the local company remains the true home base by **retaining effective strategic, creative, and technical control**, the nation still reaps of the benefits to its economy even if the firm is

owned by foreign investors or by a foreign firm'. It would be worthwhile to discuss the features written in bold letters which were mentioned by *Porter*.

One reason for multinational food companies to invest abroad is because of lower labour costs. Another one is of more strategic nature for entering the market. According to *Bredahl et al.*(1995) most of the U.S. foreign direct investment in the food sector was made in the EU in 1991, which accounted for 60 per cent of affiliate sales in that year. This strategy allows U.S. companies to circumvent tariffs and other trade restrictions. There is a pressure from trading partners to reduce trade barriers in Latvia. Following these recommendations there is some danger, it could reduce the interest of foreign investors, due to the Latvian market is comparatively small to make production investments just for later trade.

(11) 4.1.5.2.4 Other support policies

Subsidies

Agriculture in all Baltic states was heavily subsidised by paying high fixed price. Subsidies were introduced again in 1994 due to the introduction of a unified VAT, but the amount paid (4.3 million LVL) was less than 1 % of the value of total agricultural output. In 1995 the support principles described below were the same, with a small increase in budgetary outlays.

Subsidies in agriculture are mainly envisaged for quality improvement, including use of high quality inputs. In crop production, growing of graded seed material for cereals, pulses, buckwheat, rape seed, potatoes, grassland and vegetables has been supported. Regarding high quality fiber-flax and food potatoes, an extra payment over the producer price is envisaged for sales to processing enterprises. To reintroduce pedigree cattle is the main objective in the livestock sector. There is also price support for meat cattle.

Apart from that, a small scale intervention buying mechanism is expected for grain. The Grain Office can buy grain for the State Reserve stocks at intervention price set by the State. But it is a comparatively small fixed amount and its influence on grain market is not significant.

Tax concessions

Tax concessions provide significant indirect support to agriculture, especially to small individual farmers. It concerns several kinds of taxes.

To soften the impact of **excise tax** increase, and, taking into account that agricultural machinery does not use conventional roads, agricultural producers are redeemed to the tune of 120 l of diesel fuel per hectare of land (owned or in permanent tenure). Also the property used exclusively for agricultural operations (or intended to be used so) is not taxed with **property tax**.

Case-by-case approach can be applied to **land tax** payable by individual farmers.

Corporate income tax shall not be payable by individuals and by sole proprietorships (including individual farms), if their annual income does not exceed 45,000 Lats; otherwise they have to pay **income tax** also on corporate income. Agricultural producers will continue to benefit from corporate income tax concessions: the annual payable sum will be reduced by LVL 10. The small producers, alternatively, have a 20 % discount on the calculated income tax amount.

Credit availability

The availability of financial resources is the most essential factor to restructure economy. Agriculture never could rely on its own resources, and credits were needed. Under the Soviet

system credit did not play a real economic role for producers. Short and long term credits were available at extremely low rates according to distribution schedules, very much like the other resources.

As an economic factor, credit gained some significance only after the transition started, when agriculture became one of the sectors applying for loans. But it lasted only up to 1992. Since then interest rates have increased tremendously, credits became unavailable to agricultural producers for two reasons: there were other sectors of economy to be credited and rates were so high, that crediting of agriculture became too risky. Only some preferential credits issued in 1992-1993 to processing enterprises from the so called G-24 credit line can be mentioned.

In order to promote investment in agriculture, the government has created several special institutions to deal with agricultural credits - Agricultural Finance Company (AFC), State Land and Mortgage Bank, Agroinvest, later Rural Development Fund. But only AFC with its 5 regional offices, owing to access to preferential World Bank credit line in amount of 15 mill. USD at interest rate of 14 %, was a significant credit source to farmers up to 1995. Since then, as a result of general macroeconomic improvements, also some commercial banks have started to extend credits to agriculture at interest rates around 20 to 25 % for medium term credits. It has made credit more available throughout Latvia. But interest rates still are relatively high, especially compared to agricultural and food product component in PCI calculations, which shows that price increase for this group does not follow an average PCI, which was 16 % in 1996.

4.1.5.3 Other agriculture related policies

Structural, Environmental and Social Policies

Up to now there are no real structural, environmental and social policies related to agro-food sector and rural areas in Latvia. Just recently it was agreed on the necessity to start to deal with less developed regions in Latvia, where unemployment is higher and, consequently, population income level and living standards are lower. Partly it could also help agriculture to solve its problems.

Policy restrictions due to trade agreements

In the nearest future the already signed Baltic Free Trade Agreement on agricultural goods will be even more important for the Baltic states than trade with third countries. Under this agreement all three Baltic states will abolish import and export duties and quotas on all farm and fishery products of Baltic origin. In that case all three countries are more or less in the same position. This agreement will improve the general performance of all three countries together due to better trade conditions for both raw materials and processed goods, but gains for each separate country could be different.

4.1.5.4 Institutional Setting

Due to the transition process the role of the government in the whole agro-food sector has changed completely.

The transition toward a market economy requires appropriate institutional and administrative changes. In the first stage of transition lasting approximately over the years 1990 to 1994, emphasis was put on ownership issues replacing public and collective ownership by private one through restitution and other ways of privatisation. During the second phase the focus shifted toward other institutions which are also important for the functioning of an market economy.

Though not all of those institutions are fully in place and functioning Latvian policies currently stress the integration of her economy into the internationals one.

'Ordnungstheorie' offers a method for analysing the interdependence of institutional conditions on the one hand, and the connection between these conditions and economic behaviour on the other (Leipold, 1993). The main institutional settings for the functioning of a market economy are:

- competition,
- price stabilisation,
- open markets,
- private ownership,
- freedom of contract,
- full liability for outcomes of economic activities, and
- stability of economic policies.

Competition policy

From the outset of transition, the Latvian government has supported free and fair competition in the market as one of the main objectives.

Competition in agro-food sector was promoted by the restructuring and privatisation of monopolistic state owned agro-processing and agro-service enterprises and by lending support for establishing a large number of new private companies. These firms compete in buying agricultural produce (milk, livestock, grain), in providing inputs and in selling of the processed goods (dairy products, meat, flour, feed).

It should be emphasised that private companies, including those in the agro-food sector, are subject of Latvian anti-trust legislation as enacted through the Law *"On competition and restriction of monopolistic activities"* passed in 1991.

According to this law, the following main directions exist for restricting the creation and influence of monopolies.

- *Prohibition of monopolistic mergers*. It requires a permission from the State Anti-trust Institution to merge companies if the resulting company will control more than 25 % of the Latvian market in any group of commodity or activity (services). In fact, the permission will be given if there is real competition in the market (from the side of other domestic producers or possible foreign competitors).
- *Prohibition of monopolistic agreements*. Any agreements among companies, whatever their form, may be prohibited if these can cause significant restrictions in the field of production, marketing or trade in Latvia, independently from their influence on the market, like prohibiting the agreements on:
  - splitting the markets according to the territorial, or other principles;
  - pricing of products or services with the purpose to eliminate (or restrict) competition;
  - supply quotas aiming at establishing shortages*;*

- *Prohibition of management co-ordination*. No one is allowed to be a director or board member in two or more companies producing the same commodity, and consequently, they are, or should be, competitors on Latvian market.
- *Restrictions to the existing monopolistic cases***.** Companies having attained a monopoly status will be prohibited
  - to enforce conditions on contract counterparts which are not relevant to the current deal, or which restrict partner's activities in any form;
  - to build up stocks thus creating a deficit.

The Antimonopoly Committee was established to monitor the situation in the Latvian commodity and service market and to enforce this law. During previous years, its work has been targeted at market studies of some agriculture related commodities, as agricultural equipment, sugar and fuel.

Market research on agricultural equipment and services revealed that in spring of 1996 there was an overstated price for agricultural equipment and services published in mass media. According to the evaluation of the Antimonopoly Committee, agricultural services were overpriced throughout the country with the consequence of having a negative impact on the overall development of agricultural business.

Also the sugar market should be mentioned in this respect. There are only three sugar beet processing factories in Latvia (each of them having approximately a 33 % market share). And all of them as well as most sugar beet producers joined together in Latvian association "Latvian Sugar" in 1992 with the aim to promote the development of sugar sector in Latvia. That created some kind of cartel. To solve the problem, the special Law "On Sugar" was passed in 1993. At present the sugar market is confronted with some essential changes. Privatisation of all the three state owned sugar refineries was completed in 1996, leading to a completely new and different ownership structure for all the factories. Also the volume of sugar beet production has increased substantially, contributing 60 % of the total domestic consumption in 1997.

Price stability

The measures for supporting price stability used in Latvia usually are not agricultural policy measures like, for instance, intervention buying. They are more related to the state *Monetary policy*, which was discussed in the section on general economic indicators and under *competition policy* and *free trade policy* also described above.

Open market

Freedom of contract was a feature uncommon for the command economy in the former USSR, but it has become typical for independent Latvia. Nevertheless, it took some time to learn how to deal with the freedom of contract.

There is a completely free market with some general rules within Latvia, just for some agricultural products tariffs are levied. The main purpose for that is to protect domestic producers against dumped or subsidised products from countries with significantly higher state support to the sector. It creates some additional problems for Latvian agricultural sector since there is pressure from international organisations like WTO, IMF and World Bank to lower market protection. Difficulties for Latvian producers arise in entering foreign markets without export support. Partly these trade policies could be viewed as following the *Infant industry argument* to

create preconditions for restructuring the domestic industries. As an example, the Latvian sugar sector can be mentioned where the state support other than import tariffs will be abolished in 1998 due to successful production development.

Open markets will be discussed also in the chapter on agricultural policy and foreign trade. Apart from the aforesaid, the role of the government in promoting export should be pointed out as a key factor to develop competitiveness. State export promotion system should form a set of specific activities which financially and organisationally would enhance the development of export potential of companies. Staff of domestic exporting companies should be trained and advised by the government on:

- direct activities which are closely linked to export transactions (insurance of export risks and crediting, etc.);
- indirect promotion activities of the system of export services, which comprises acquisition of information, its processing and dissemination in the form of publications and answers to inquiries;
- professional consultations on issues of quality requirements in export markets, procedure of export transactions, financing, insurance, etc.
- information and support activities aimed at participation of entrepreneurs in national and international exhibitions and fairs.

Private ownership

From the above mentioned conditions, ownership rights where those which were affected most by the political changes. In agriculture separate laws on land and on non-land asset privatisation (see also *Zile*, 1992; *Miglavs and oth*., 1994, *OECD*, 1996) served as the main legal basis for privatisation in agriculture. Privatisation in up- and downstream industries was carried out according to some other laws on each particular subsector. Since 1995 the private sector dominates the agro-food market.

Full liability for outcomes of economic activities

Under the conditions of full liability each entrepreneur should be responsible for his/her activities. This means that the state should not recover or capitalise debts of companies, as it did during the USSR times. The changes in ownership and the establishment of new legal forms were already accomplished through the process of privatisation. The precondition - the *'Law on Bankruptcy'* in Latvia was passed in the middle of 1996, and some enterprises have already undergone this process.

Economic environment

Apart from those institutional conditions offered by 'Ordnungstheorie', other economic factors like physical and institutional infrastructure, research, education, training and extension as well as quality standards and sanitary control which play a major role in the ability of a country to be competitive internationally should also be assessed at national level. A description of the development of the physical infrastructure is provided in the OECD Country Report: 'Latvia, 1996'.

After the collapse of the USSR, the legal basis for supporting changes in the economy had to be created. This was done through a step by step approach, as a gradual evolution, and was based on the feedback from the legal framework and from the economic environment.

The general economic situation with its advantages and disadvantages have already been described above in the section on General Economic Indicators and are not repeated here. Very important for economic development is that governments pursue a steady path of economic policies. Only under such conditions are the private economic decision makers able to make long-term decisions. The steadiness of economic policies is highly dependent on political stability which is lacking in many transition countries. Those transition countries with a rather stable political environment are more successful in reforming their economy and, hence, more competitive. In highly developed countries, especially the EU, it is much more difficult for politicians to make corrections in the economy through setting different policies.

4.1.5.5 Market regulations

Land market

This fact that the land market is not well functioning in Latvia slows down the further restructuring of farms. Sales of land started only in 1996 and this on a rather low scale. This leads to problems in using land as a collateral for bank loans which in turn hampers competitiveness. However, as a collateral only fertile land is accepted. There are several main obstacles for the development of a land market:

- the main obstacles seem to be the low returns on farm land and the lack of other business opportunities for rural people;
- the long time required to register land due to insufficient personal in registration agency;
- frequently foreigners are restricted to own land.

Food market

One of the first decision of the Latvian government was to abolish those state agencies and companies which controlled the food processing and distribution in the socialist system. Also the centralised system of procurements and procurement prices was eliminated providing the basis for competition in the whole agro-food market. However, privatising them in many cases would not break up the monopolies. The formerly state owned companies were therefore restructured into several independent companies competing in the market. This enhanced competition greatly.

Presently, the only sector where the state has retained an institution to control the market is the grain sector through the State Grain Bureau which was created in 1993. This institution works on State Grain Balance to be able to suggest the changes for trade regime in Latvia. It also maintains State Grain Reserve (not exceeding 3-10 % of total yearly grain consumption) to have an opportunity to stabilise the grain market in the case it becomes necessary.

In addition, there exist some other quite independent state institutions dealing with quality improvement and veterinary and phytosanitary issues, as State Veterinary Department, Plant Protection Service, Food Inspection and some others.

All this was accomplished when absolutely liberal farming and marketing rules were established in Latvia in 1992-1993. These were the years with absolutely lowest level of state support to agriculture, even the implicit taxation of the sector (*OECD*).

To improve economic conditions for farming, some support policy measures were introduced afterwards: import tariffs, direct subsidies, and a preferential credit line from the World Bank was arranged. Also the work on long term consistent state agricultural policy was started in 1994. All this has led to increase of state support to agriculture measured through the Producer subsidy equivalent (PSE) what has reached the level of 5 % in 1996 but still remains far below that in most of OECD countries and EU particularly.

4.2 Development of Determinants of Competitiveness

4.2.1 Factor Conditions

Some decrease in total utilised agricultural land can be expected in the forthcoming years. Smaller plots of the current agricultural lands located within or close to forests will probably become forest. Thus about 300000 ha or about 10 % of current agricultural land could change their their use. It would allow to exclude the less productive areas from agricultural production.

There will be a differentiation in land use under different crops in various regions of Latvia. We can expect a further increase of the area under grains and sugar beets in the Central Southern areas of Latvia where the most fertile soils are located. While the highlands in particular Eastern Latvia, the central highland at Vidzeme and Western Kurzeme will be more used for the production of grass/legume crops or as natural grasslands.

Little can be done with respect to the general climatic conditions, but some further concentration on varieties requesting less amount of efficient temperatures can be expected. As a good result of the development of crop production technology the high quality of wheat suitable not only as forage but also for production of high quality flour can be mentioned. In general the short growing season still will present considerable problems for reaching high yields of crops compared to those in Western Europe and also Poland and Hungary. Due to the relatively little polluted soils Latvian agriculture has some chance to enter the market of organic farming products. This might compensate to a small degree for the climatic conditions handicaps.

Maintaining of the drainage systems will require more efforts and also funds in the forthcoming years. Construction of new drainage systems is hardly envisaged.

4.2.2 Firm Structure and employment

Further concentration of farms can be expected. It is likely that the market oriented agricultural production will concentrate in bigger farm units, still remaining as family farms. The number of such farms could decrease from currently 95 thousand to 30 to 40 thousand with an average about 50 to 100 ha of which 40 to 60 would be arable land. In specialised grain producing areas the farm size can be expected even bigger, following the already existing trend of emerging farms with 300 to 400 ha of arable land.

Also livestock production will concentrate in a smaller number of farms but with the production facilities which would allow producers to meet increasing production quality and efficiency requirements. There are calculations indicating the total need for investment amounting to 600 to 900 hundred million LVL to restructure the current agricultural sector.

At the same time some subsidiary farms will keep their role as producers of agricultural products for selfconsumption.

The development of this process strongly depend on land market development, investment availability and also rural development policies offering more employment opportunities for current farm owners and operators.

The number of persons employed in agriculture is expected to decrease significantly, reaching 70 to 80 thousand people during the next decade which is less then half of the current numbers.

Part of that will come due to the age structure where people in pension age or close to that give a significant share. Some other should leave to other jobs.

4.2.3 Demand

Forecasts of the macroeconomic development indicate GDP growth rates of 5 to 6 % in the next decade, which means also an increase in the purchasing power of the Latvian population. But the continuous change in the general price structure in favour of housing, education and communications means forecast with respect to food consumption difficult. Given the decreasing number of population one cannot expect on increase in total volumes of food consumption in Latvia.

Some changes in food consumption patterns can be envisaged. Milk consumption is unlikely to recover to the levels of the prereform period due to the increasing role of vegetable oils and also margarins in consumption instead of butter and milk based fats. Some increase in consumption of highly processed milk products can be expected. Also poultry and pork consumption will be further preferred to beef.

4.2.4 Downstream sector

The performance of this sector still is the key for the competitiveness of Latvian agriculture.

The concentration of processing in bigger units will continue. Only those of them able to invest in modernisation of technology and also in development of technical, marketing, and business skills will stay in business.

In addition to economic efficiency criteria of meeting the food quality assurance requirements is getting of increasing importance. There are six enterprises in Latvian dairy sector currently allowed to export their produce to the EU market as was recognised by EU authorities.

Since in the meat sector there is no enterprise which can export its products toe the EU. This limits competitiveness of this sector even more. Therefore wide technological modernisation programmes are necessary for this sector.

4.2.5 Trade

An insufficiently developed distribution network which results in high processing and distribution margins still is one of the main impediments for the efficiency and competitiveness of the whole Latvian agricultural and food sector. The development of wholesale markets and emergence of new retail chains with their own distribution systems can be expected for the next decade. Entering of foreign retail chain companies (as *Rimi* for example) will facilitate the process.

At the same time the co-ordination of efforts in export markets remains a problem for many processing companies, since they are too small to cover high market entry costs.

4.2.6 The Role of the Government

4.2.6.1 Macroeconomic Policies

Government has declared to continue a tight monetary policy. Annual GDP growth rate is expected to be 5 to 7 %, what is rather high compared to the EU level.

The growth in prices for food will be lower then those for housing and general services such as health care, education and communications while inflation rates will continue to be relatively low. The inflation process combined with the pegged nominal exchange rate might contribute to a decline of international competitiveness of the Latvian agricultural sector.

Expected level of inflation rates (5 to 8 %) and balanced state budget give some indications that the credits with interest rates could become more available also for agriculture.

4.2.6.2 Agricultural Policies

In 1997 in continuation of recent developments in the field of agricultural policy Latvian government clearly declared its intention to promote the development of efficient farming through investments in modernisation of technology used, land consolidation, increase of soil productivity and marketing power. It also declared the support to agriculture should be given in a form of direct targeted support rather in form of price support. The methods to be used are very close to those used in the EU Structural funds.

At the same time the level of this support will continue to be relatively low as compared to total agricultural output and also to that in the EU and some of the CEAs. Amount of that is limited by the level of general economic development and also by the tight monetary policy. That is one of the reasons why co-financing as the instrument to decrease the actual interest rate on investments close to zero level was chosen.

In fact it means also in future the competitiveness of Latvian agriculture will be determined by its efficiency rather then state support given in form of export subsidies or other price support measure.

At the same time the problem of income generated per person employed in agriculture will remain among the most important ones. Creating new employment opportunities in the countryside through rural development policies will gain in importance.

Also training and information dissemination network will be developed. This will improve the situation for farmers and increase their capability to make their own business decisions.

4.2.6.3 Agricultural Trade Policy

In the field of Agricultural trade policy Latvia is likely to continue the process of further liberalisation which partly could be restricted by EU integration process to keep the market protection in line with that used by the EU.

GATT/WTO agreement

As the major forthcoming event in the field of trade policies will be joining to GATT/WTO agreement what can be foreseen in 1998. It still is too early to discuss the precise content of the accession agreement, but it can be expected Latvia will not increase market protection (tariff and non- tariff barriers) and will not start to use domestic support measures belonging to “yellow box”.

The Baltic FTA

The Baltic FTA on agricultural and food products is in force already since January 1, 1997. Its most important impact is alignment of food and also farm gate prices through the Baltics and implicitly also of agricultural policies used in those.

The next step to be taken is the establishment of the Baltic Customs Union. But this process likely will be stopped by the EU Commission proposal to start accession negotiations with just Estonia.

4.2.6.4 Foreign investment

Foreign investment might increase its role in agro-food sector due to the completion of the privatisation process and the increased trade area due to the Baltic FTA. While it seems more likely this process will be in the form of the establishing of joint ventures and taking over the existing private companies rather to establish new units.

4.2.7 Other agriculture related policies

EU integration process will continue to be as the most decisive external factor which closely relates also to the internal policy developments.

There is a clear need to establish the institutional framework to ensure the possible integration of Latvia market into that of the EU. It concerns not only production directly related policies, but also environmental policies. It can cause some additional costs for Latvian agriculture and thus lower its competitiveness.

At the same time regional development policies agreed to be introduced could help agriculture to solve its efficiency problems by decreasing the number of agricultural employment. While further improvement of the social security network could allow to decrease the importance of the subsidiary farms, giving elderly people some other income opportunities. In general it could cause some changes in the market structure the both demand and supply side, leading to a concentration of production and increasing the market volumes on the internal market.

4.3 Discussion of Quantitative Measures

4.3.1 Profitability Indicators

According to the scheme of profitability studies, suggested by the Agricultural Economics Research Institute, Finland (MTTL) and agreed upon by the participants in the project, profitability studies were prepared for different subsectors of Latvian agriculture. Products covered are:

- winter wheat; spring wheat; barley; oats; rape seed;
- potatoes,
- sugar beet
- cucumbers and tomatoes;
- milk;
- beef;

- pork.

The profitability studies contain calculation of gross return, variable and fixed costs, labour input and gross margins (profitability thresholds) calculations. All the tables were built up according to the same structure, which allowed to make summary tables containing gross margins per labour or any other main input.

In addition to the base calculation - labelled (a) - two different scenarios are elaborated, labelled (b) and (c):

(a) 96/96 - which refers to the average results in Latvia in 1996- existing price structure and also input and output data;
(b) 96/05 - Latvian prices from 1996 and input and output data from the best part of Latvian farms, so called "perspective production scenario";
(c) 05/05 - EU price structure and "perspective production scenario".

Data used in the calculations are collected from various sources.

1) Data about the yields and product prices is taken from Statistical publications,
2) Data about the use of inputs is taken from the accounting results of bookkeeping farms,
3) Data about the prices is collected from various sources- Ministry of Agriculture, Central Statistical bureau, Latvian Agriculture Advisory Centre (LAAS), LSIAE.

Depreciation for 1996 is taken as average calculated in agriculture in 1996, for the "perspective production scenario" it is calculated using depreciation rates accepted in Latvia and estimated replacement value of inputs.

The labour costs are calculated according to the required labour input and existing remuneration level in Latvia, including also social tax payments (which means 37 % over payroll sums).

Interest demand on the productive capital and also operating capital is calculated at 3 % level for the average value.

Management and overhead costs are calculated as 5 % of total other costs.

"Perspective production scenario" (input and output structure in natural values) is built up from the experience of the best crop farms in Latvia, suggestions of other Latvian researchers and experts form LAAS.

Summary results of the calculation by sectors are provided in Table 4.12 to Table 4.26.

The results of the profitability indicators are summarised using gross margin IV which is obtained as gross margin I minus fixed costs. Table 4.28 shows these margins per hectare or per unit of the corresponding animal type.

As can be seen from that Table, the situation prevailing in 1996 (see column with heading '(a) 96/96') - lead to losses in producing of all agricultural commodities but sugar beets, vegetables, milk and pork. But under the price structure as expected to prevail in the EU in 2005 it would lead to losses in the production of any of the crop under consideration. Production of the three animal outputs analysed in this study, however, would be profitable.

The scenario with an input - output structure observed in the best part of farms and prices as they prevailed in Latvia in 1996 - labelled '(c) 96/05 in the column headings - Latvian agriculture

would be best off. (Summary results for this scenario are presented in Table 4.28. and Table 4.27). Farmers could gain from the production of grain. Also the other three crops which were profitable already in the scenario '96/96' would continue to be profitable. Returns to land, as indicated by gross margin IV - would be highest for the two vegetables and sugar beets. However, since the vegetables are very labour intensive commodities to adequately pay this factor would not leave any return to land. Hence grains and sugar beets are expected to be the main competitor for arable land in such a scenario. As regards to the livestock products, production of beef would still lead to losses since the beef price is assumed for the EU-price structure to be higher than it was in 1996 in Latvia.

The last scenario to be discussed is the one which is based on future technology and the EU-price structure expected for 2005 - labelled '(c) 05/05'. Such an environment would lead to positive returns for all products as in scenario '(b) 96/05' and in addition for potatoes and beef. Milk production would be considerably more favourable than in all other scenarios. Only under this scenario production of potatoes could be profitable. Vegetables are not profitable in this scenario as well as rye, barley, oats and rape seed.

Table 4.12: Latvia: winter wheat

Indicators	**Units**	**(a) 96/96**	**(b) 96/05**	**(c) 05/05**
Total return	ECU	363.13	726.95	687.05
Chemical costs	ECU	98.33	173.39	149.31
Total operating costs	ECU	322.22	432.46	412.86
Gross margin I	ECU	40.91	294.48	274.19
Labour requirement	hours	6.00	6.00	6.00
Gross margin I per labour unit	ECU/h	6.82	49.08	45.70
Gross margin III	ECU	-42.87	82.06	62.74
Gross margin III per labour unit	ECU/h	-7.14	13.68	10.46

Table 4.13: Latvia: spring wheat

Indicators	**Units**	**96/96**	**96/05**	**05/05**
Total return	ECU	283.35	709.07	670.15
Chemical costs	ECU	60.33	133.04	133.04
Total operating costs	ECU	300.13	417.69	421.56
Gross margin I	ECU	-16.78	291.38	248.59
Labour requirement	hours	6.00	6.00	6.00
Gross margin I per labour unit	ECU/h	-2.80	48.56	41.43
Gross margin III	ECU	-99.45	79.69	36.71
Gross margin III per labour unit	ECU/h	-16.57	13.28	6.12

Table 4.14: Latvia: rye

Indicators	**Units**	**96/96**	**96/05**	**05/05**
Total return	ECU	296.05	498.02	585.00
Chemical costs	ECU	71.62	148.60	148.60
Total operating costs	ECU	295.63	429.44	434.08
Gross margin I	ECU	0.42	68.58	150.92
Labour requirement	hours	6.00	6.00	6.00
Gross margin I per labour unit	ECU/h	0.07	11.43	25.15
Gross margin III	ECU	-82.02	-143.69	-60.96
Gross margin III per labour unit	ECU/h	-13.67	-23.95	-10.16

Table 4.15: Latvia: Barley

Indicators	**Units**	**96/96**	**96/05**	**05/05**
Total return	ECU	212.21	477.35	557.40
Chemical costs	ECU	54.74	99.84	99.84
Total operating costs	ECU	280.29	366.20	371.41
Gross margin I	ECU	-68.08	111.15	185.99
Labour requirement	hours	6.00	6.00	6.00
Gross margin I per labour unit	ECU/h	-11.35	18.53	31.00
Gross margin III	ECU	-149.75	-97.96	-23.38
Gross margin III per labour unit	ECU/h	-24.96	-16.33	-3.90

Table 4.16: Latvia: Oats

Indicators	**Units**	**96/96**	**96/05**	**05/05**
Total return	ECU	212.21	424.43	474.95
Chemical costs	ECU	51.98	83.72	83.72
Total operating costs	ECU	278.87	331.61	335.67
Gross margin I	ECU	-66.65	92.82	139.28
Labour requirement	hours	6.00	6.00	6.00
Gross margin I per labour unit	ECU/h	-11.11	15.47	23.21
Gross margin III	ECU	-148.26	-114.57	-68.31
Gross margin III per labour unit	ECU/h	-24.71	-19.09	-11.39

Table 4.17: Latvia: Rape seed

Indicators	**Units**	**96/96**	**96/05**	**05/05**
Total return	ECU	261.44	335.18	380.00
Chemical costs	ECU	358.10	166.25	166.25
Total operating costs	ECU	587.75	415.37	409.96
Gross margin I	ECU	-326.31	-80.19	-29.96
Labour requirement	hours	9.00	9.00	9.00
Gross margin I per labour unit	ECU/h	-36.26	-8.91	-3.33
Gross margin III	ECU	-423.68	-273.70	-223.20
Gross margin III per labour unit	ECU/h	-47.08	-30.41	-24.80

Table 4.18: Latvia: Potatoes

Indicators	**Units**	**96/96**	**96/05**	**05/05**
Total return	ECU	745.30	1458.66	2051.70
Chemical costs	ECU	87.94	120.82	121.85
Total operating costs	ECU	1066.39	1240.46	1451.15
Gross margin I	ECU	-321.09	218.20	600.55
Labour requirement	hours	10.00	8.00	8.00
Gross margin I per labour unit	ECU/h	-32.11	27.27	75.07
Gross margin III	ECU	-403.90	-46.51	325.31
Gross margin III per labour unit	ECU/h	-40.39	-5.81	40.66

Table 4.19: Latvia: Sugar beets

Indicators	**Units**	**96/96**	**96/05**	**05/05**
Total return	ECU	865.61	1782.61	1672.00
Chemical costs	ECU	199.21	221.00	221.00
Total operating costs	ECU	727.88	817.27	815.51
Gross margin I	ECU	137.73	965.34	856.49
Labour requirement	hours	50.00	17.00	17.00
Gross margin I per labour unit	ECU/h	2.75	56.78	50.38
Gross margin III	ECU	12.49	732.51	623.75
Gross margin III per labour unit	ECU/h	0.25	43.09	36.69

Table 4.20: Latvia: Cucumbers

Indicators	**Units**	**96/96**	**96/05**	**05.05**
Total return	ECU	317596	317596	144180
Chemical costs	ECU	6384	6384	6147
Total operating costs	ECU	186522	186634	184706
Gross margin I	ECU	131074	130962	-40526
Labour requirement	hours	40657	40657	40657
Gross margin I per labour unit	ECU/h	3.22	3.22	-1.00
Gross margin III	ECU	109581	109464	-61928
Gross margin III per labour unit	ECU/h	2.70	2.69	-1.52

Table 4.21: Tomatoes

Indicators	Units	96/96	96/05	05/05
Total return	ECU	272347	272347	84645
Chemical costs	ECU	6384	6384	6147
Total operating costs	ECU	174156	170108	169868
Gross margin I	ECU	98191	102239	-85223
Labour requirement	hours	49985	49985	49985
Gross margin I per labour unit	ECU/h	1.96	2.05	-1.70
Gross margin III	ECU	76332	80583	-106868
Gross margin III per labour unit	ECU/h	1.53	1.61	-2.14

Table 4.22: Milk

Indicators	**Units**	**96/96**	**96/05**	**05/05**
Total return	ECU	607.46	995.19	1948.23
Feed costs	ECU	307.88	444.44	526.46
Total operating costs	ECU	490.35	546.56	736.88
Gross margin I	ECU	117.12	448.63	1211.36
Labour requirement	hours	147.00	52.50	52.50
Gross margin I per labour unit	ECU/h	0.80	8.55	23.07
Gross margin III	ECU	58.71	239.32	992.53
Gross margin III per labour unit	ECU/h	0.40	4.56	18.91

Table 4.23: Beef

Indicators	**Units**	**96/96**	**96/05**	**05.05**
Total return	ECU	324.05	332.90	862.74
Feed costs	ECU	286.13	293.18	361.63
Total operating costs	ECU	321.40	328.30	419.06
Gross margin I	ECU	2.65	4.60	443.69
Labour requirement	hours	127.00	76.00	76.00
Gross margin I per labour unit	ECU/h	0.02	0.06	5.84
Gross margin III	ECU	-45.21	-142.98	291.57
Gross margin III per labour unit	ECU/h	-0.36	-1.88	3.84

Table 4.24: Pork

Indicators	Units	96/96	96/05	05/05
Total return	ECU	123.79	125.12	112.09
Feed costs	ECU	34.88	37.80	46.30
Total operating costs	ECU	62.90	66.32	72.68
Gross margin I	ECU	60.89	58.80	39.41
Labour requirement	hours	24.00	14.60	14.60
Gross margin I per labour unit	ECU/h	2.54	4.03	2.70
Gross margin III	ECU	52.46	20.86	1.15
Gross margin III per labour unit	ECU/h	2.19	1.43	0.08

Table 4.25: Profitability indicators of crops for Latvia according to scenario '(b) 96/05'

	Unit of Measure-ment	Wheat	Rye	Barley	Oats	Rape seed	Potatoes	Sugar beet
yield	mt/ha	5	4.5	4.5	4	2	18	40
labour requirement	h/ha	3	3	3	3	3	8	17
price	ECU/mt	138	111	103	103	168	73	36
Total return	ECU/ha	688	517	477	424	335	1459	1783
total operating cost	ECU/ha	432	429	366	332	326	1240	895
labour cost	ECU/ha	6	6	6	6	6	17	36
fixed cost	ECU/ha	32	32	29	27	27	73	57
gross margin I	ECU/ha	294	88	111	93	9	218	887
gross margin II	ECU/ha	288	82	105	87	3	201	852
gross margin III	ECU/h	98	29	37	31	3	27	52
revenue	ECU/ha	256	50	76	60	-24	128	795

Indicator	Unit of measurement	Wheat	Rye	Barley	Oats	Rapeseed	Potatoes	Sugarbeet
Yield	mt/ha	5.00	4.50	4.50	4.00	2.00	18.00	40.00
Labour requirement	h/ha	6	6	6	6	9	8	17
Price	ECU/mt	138	111	103	103	168	73	36
Total return	ECU/ha	688	498	462	411	335	1315	1423
total operating cost	ECU/ha	432	429	366	332	415	1240	817

labour cost	ECU/ha	13	13	13	13	19	17	36
fixed cost	ECU/ha	212	212	209	207	194	265	233
gross margin I	ECU/ha	294	69	111	93	-80	218	965
gross margin II	ECU/ha	282	56	98	80	-99	201	929
gross margin III per labour unit	ECU/h	13.7	-11.3	-7.7	-9.0	-14.4	-2.8	20.4
Revenue	ECU/ha	69	-156	-111	-127	-293	-63	697

Table 4.26: Profitability indicators of animals for Latvia according to scenario '(b) 96/05'

	Unit of Measurement	Milk	Beef	Pork
yield	mt/animal	3.5	0.24	0.07
labour requirement	h/animal	85	22	7
price	ECU/mt	150	1240	1630
Total return	ECU/animal	607	324	124
total operating cost	ECU/animal	490	321	63
labour cost	ECU/animal	179	46	15
fixed cost	ECU/animal	52	37	7
gross margin I	ECU/animal	117	3	61
gross margin II	ECU/animal	-62	-43	46
gross margin III	ECU/h	1.4	0.1	8.7
revenue	ECU/animal	-114	-80	39

Indicator	Unit of measurement	Milk	Beef	Pork
yield	mt/ha	6.00	0.48	0.10
Labour requirement	h/ha	19	76	15
price	ECU/mt	150	620	1008
Total return	ECU/ha	901	297	101
total operating cost	ECU/ha	20	328	73
labour cost	ECU/ha	19	160	15
fixed cost	ECU/ha	41	148	142
gross margin I per factor unit	ECU/ha	12	5	39
gross margin II per factor unit	ECU/ha	547	-156	8

gross margin III per labour unit	ECU/h	36.9	-1.9	-1.0
revenue	ECU/ha	35	-303	3

Table 4.27: Gross margin IV (ECU per hectare or animal unit)

Products	**96/96**	**96/05**	**05/05**
Winter wheat	-42.87	82.06	62.74
Spring wheat	-99.45	79.69	36.71
Rye	-82.02	-143.69	-60.96
Barley	-149.75	-97.96	-23.38
Oats	-148.26	-114.57	-68.31
Rape seed	-423.68	-273.70	-223.20
Potatoes	-403.90	-46.51	325.31
Sugar beet	12.49	732.51	623.75
Cucumbers	109581	109464	-61928
Tomatoes	76332	80583	-106868
Milk	58.71	239.32	992.53
Beef	-45.21	-142.98	291.57
Pork	52.46	20.86	1.15

4.3.2 Market Share Indicators

4.3.2.1 Revealed Comparative Advantage of Latvia in Agricultural and Food Products

The discussion in section 3.3.2.1 has revealed that RXAs, RMPs and RTAs are relevant indicators to measure competitiveness based on trade data. Those three indicators have been analysed for Latvia and the EU-15 for 39 agricultural raw and processed products/product groups using all merchandise trade as a reference group. Although the indices have been calculated for the period 1993 to 1996 Table 4.28 only summarise the results for 1995, the year for which data seemed to be most reliable (see also section 3.3.2.2). The discussion in this section will mainly concentrate on the RTA, since this indicator implicitly covers the other two already.

The RTA values for Latvia, taking first all commodities as a reference group, are negative for most products. The negative RTA values for all livestock and meat hint at a competitive disadvantage for these products. In addition, the indicator reveals a higher value for processed meat products (sausages and processed meat) than for livestock. This result must come as a surprise, given the fact that the technology used in the meat processing industry in this country is in many cases outdated; this generally implies lower-quality products whose competitiveness in the international market would thus be reduced. In this respect it would be interesting to know more about the destination of these exports.

Positive RTA values are presented for different kinds of milk products in Table 4.28 for both Latvia and the EU. This result can be explained with the favourable natural conditions and the high percentage of pasture land in total agricultural land in Latvia, while it is mainly the result of high protection for these products in the EU.

For all grain but rye, the figures in Table 4.28 reveal a competitive disadvantage for Latvia. The extremely high RTA value for rye in Latvia can be explained by the fact that in 1995 Latvia exported large amounts of rye it had received from Finland in 1992 on a concessionary basis. Since rye is of little relevance in international trade, and Latvia generally has little importance in the international commodity trade, this has resulted in the fairly high figure. For the EU the highest competitive advantage in the area of grain is revealed for rye, too, but positive values for all other grains are also shown in Table 4.28.

With respect to oilseeds and the processed products oil, cake and margarine, Latvia seems to have a comparative disadvantage. The only product with a positive albeit small RTA value in this area is rape/mustard seed. While the RTA values are also negative for oilseeds and oilcakes, positive values are revealed for the processed products oil and margarine in the EU (see also section 3.3.2.2).

Table 4.28: Measuring Competitiveness in Latvia and the EU-15 based on the Revealed Relative Export (RXA), Import (RMP) and Trade Advantage Index (RTA) in 1995

Reference Product Group: All Merchandise Trade

Product or Product Group	Latvia			European Union		
	RXA	RMP	RTA	RXA	RMP	RTA
Bovine cattle	0.0	0.4	-0.4	1.7	1.1	0.6
Sheep & goats	0.0	0.0	0.0	0.3	0.5	-0.2
Pigs	0.0	1.1	-1.1	2.6	2.3	0.2
Beef & veal	0.0	0.1	-0.1	1.5	1.3	0.1
Mutton & goat	0.0	0.0	0.0	0.8	2.8	-2.0
Pigmeat	0.0	0.6	-0.6	2.9	1.5	1.4
Poultry meat	0.2	0.4	-0.2	1.1	0.9	0.2
Bacon & ham	0.0	0.2	-0.2	13.2	10.3	2.9
Sausages	2.2	0.1	2.1	2.1	1.6	0.5
Meat, prepared	5.4	0.1	5.2	3.9	1.7	2.2
Milk, fresh	2.0	0.0	2.0	19.4	9.9	9.4
Milk, dry	0.5	0.3	0.2	2.6	0.9	1.7
Butter	2.3	0.0	2.3	4.9	3.5	1.5
Cheese	2.2	0.1	2.1	7.7	3.9	3.8
Eggs in shell	0.3	0.3	-0.1	2.8	1.6	1.1
Wheat	0.0	0.7	-0.7	0.6	0.4	0.2
Wheat flour	0.0	0.0	0.0	2.0	0.2	1.8
Barley	0.1	0.5	-0.4	2.2	0.9	1.2
Rye	11.7	0.0	11.7	10.3	0.7	9.6
Potatoes	0.0	0.6	-0.6	3.7	3.5	0.2
Soybeans	0.0	0.0	0.0	0.0	1.5	-1.5
Sunflower seed	0.0	0.9	-0.9	0.7	4.3	-3.6
Rape/mustardseed	0.3	0.0	0.3	0.5	1.4	-0.8
Tomatoes	0.1	0.9	-0.9	2.7	2.7	0.0
Onions	0.2	4.5	-4.2	0.8	0.9	-0.1
Apples	0.0	2.5	-2.5	1.4	1.8	-0.4
Grapes	0.0	0.8	-0.8	1.2	1.5	-0.3
Wine	2.9	3.8	-0.9	8.7	2.5	6.2
Beer	0.5	1.4	-0.9	2.5	0.8	1.7
Sugar, total	3.0	4.6	-1.6	0.7	0.4	0.2
Soybean oil	0.0	0.1	-0.1	0.4	0.1	0.2
Sunflowerseed oil	0.3	5.1	-4.8	0.6	0.4	0.2
Rape/mustard oil	1.0	4.8	-3.8	2.8	0.6	2.2
Chocolate	2.8	0.7	2.0	5.0	2.1	2.9
Soybean cakes	0.0	0.5	-0.4	0.3	1.7	-1.4
Sunflower cakes	0.0	0.6	-0.6	0.6	5.9	-5.3
Rapeseed cakes	0.0	0.0	0.0	0.9	1.7	-0.8
Margarine	0.8	5.1	-4.4	2.6	0.7	1.9
Other Agr. Prod.	0.2	0.5	-0.3	0.5	0.7	-0.3
Non Agr. Prod.	2.1	1.4	0.7	1.2	1.1	0.2

Source: Own calculation based on data from FAOSTAT

For all fruits and vegetables considered in Table 4.28, negative RTA values are revealed for Latvia as well as for the EU, although in general the indicated degree of competitive disadvantage seems to be more pronounced in the Baltic country. The indicator also reveals negative values for wine and beer in Latvia, while these products have a competitive advantage in the EU. The positive value for chocolate can be mainly attributed to the chocolate-processing enterprise Laima in Riga, which exports its products to East and West European countries. The aggregate of those agricultural products not covered in the product list reveal negative RTA values.

Finally, it should be noted that the aggregate Non-Agricultural Products in Table 4.28 reveals positive RTA values. This result indicates that the agricultural sector as a whole must have a comparative trade disadvantage compared to total trade as was the case in Estonia. At this point it should be noted that trade in food and agricultural products accounted for only 4.25 % of total merchandise exports in 1995, while its share in total merchandise imports was somewhat higher at 6.63 %.

As discussed in section 3.3.2.2 it has to be kept in mind that the Baltic countries are still in a transformation process. Thus strong shifts in competitiveness can occur, even from year to year. Thus the results have to be treated with caution.

4.3.2.2 Overall Bilateral Complementarity in Trade Advantage between Latvia and the EU

The competitiveness of the agricultural and food sector in Latvia after accession to the EU is to a large extent determined by the similarity or complementary structure of agricultural trade advantages between Latvia on the one hand and the EU on the other hand. For this reason the index of Overall Bilateral Complementarity (OBC) between the EU and Latvia is calculated for 1995 (see 3.3.2.3). The OBC amounts to -0.193 for 1995, thus pointing to the fact that competitiveness rather than complementarity will determine the trade relationship between Latvia and the EU after the accession of the former to the EU.

4.3.2.3 Similarity in Trade and Trade Advantage between Latvia and the NewMCs

At the end of 1997 the EU Council of Ministers decided to start negotiations for accession with the Czech Republic, Estonia, Hungary, Poland and Slovenia. The EU Commission based its decision primarily on the fulfilment of the following three criteria in the respective countries (EU Commission, 1997b):

- democratic legislation and the consideration of minority rights;
- progress in reforms and capability to cope with competition in the EU;
- capability to apply the aquis communautaire.

Latvia was not seen to belong to those countries that are capable to fulfil these conditions in the medium term and thus has not been selected for the first round of accession. The enlargement of the EU theoretically gives rise to two effects: trade creation and trade diversion. The latter could have negative repercussions for Latvia and those other countries that will be left outside in the first round of east enlargement. This is likely to occur if three conditions hold. First, the EU market is of relevance as an export destination for Latvia. With 15 % of Latvian agricultural export going to the EU this conditions holds to a moderate degree. Second, the NewMCs export the same type of commodities to the EU-15 as Latvia, and third trade barriers for exports of those

products to the EU exist at the time of east enlargement. Where exports are not similar or European import tariffs are close to zero, there is little scope for trade diversion.

The level of protection given in the EU agricultural policy certainly varies considerably for different products. This aspect will be neglected here; the possibility that the first east accession may divert trade away from Latvia will be assessed exclusively on the basis of the degree of similarity (in comparative advantage) between exports from each of the NewMCs and Latvia to the EU. For this purpose two different indices are calculated: the Export Similarity Index of Finger and Kreinin and the Similarity in Trade Advantage Index[14].

The Export Similarity Index reveals the proportion of exports from Latvia (i) to the EU that is equal to the exports from a NewMC (j).

$$S_{ij} = \left\{ \sum_{P} Min\left(M_{i,P}, M_{j,P} \right) \right\}$$

with $M_{i,P}$ being the share of product P in total EU imports from Latvia (i), and $M_{j,P}$ being the share of product P in total EU imports from a NewMC (j). The index ranges between 0 and 1. It will take the value of 1, if the structures of exports from Latvia and a NewMC to the EU are identical; in a case where export patterns are completely dissimilar, it will equal 0. Table 4.29 presents the results for 1996 as well as for the period 1994 to 1996. This also gives some indication of the stability of the results over the last years.

[14] For a discussion and the application of these methods, see also Finger and Kreinin, 1979; Brenton, Tourdyeva and Whalley, 1997.

Table 4.29: Similarity between Latvias´ and NewMCs´ Exports to the EU

	Czech Republic		Estonia		Hungary		**Poland**		**Slovenia**	
	Average 1994-1996	1996	Average 1994-1996	1996	Average 1994-1996	1996	Average 1994-1996	1996	Average 1994-1996	1996
Similarity of Trade Index[1]										
All Agricultural and Food Products	0.20	0.28	0.35	0.42	0.12	0.13	0.30	0.31	0.14	0.14
Agricultural Raw Products	0.09	0.14	0.34	0.15	0.08	0.11	0.17	0.14	0.06	0.10
Minimally Processed Agricultural and Food Products	0.18	0.20	0.49	0.60	0.13	0.17	0.32	0.37	0.14	0.17
Semi-processed Agricultural and Food Products	0.33	0.44	0.49	0.50	0.13	0.05	0.39	0.32	0.08	0.05
Highly Processed Agricultural and Food Products	0.24	0.29	0.25	0.42	0.17	0.20	0.45	0.29	0.27	0.42
Degree of Similarity in Trade Advantage[2]										
All Agricultural and Food Products	0.39	0.42	0.42	0.60	0.20	0.11	0.58	0.61	0.24	0.21

1) Measured with the Finger-Kreinin Export Similarity Index.

2) This index is equal to the share of Lithuanians´ export for which the Relative Export Advantage Index in Lithuania and the considered NewMC is greater than 1

Source: Own Calculations based on data from EUROSTAT

The figures in Table 4.29 suggest that Latvia is especially affected by the accession of Estonia and Poland; the overlap with these two countries in exports to the EU amounts to more than 30 %. To analyse in which product areas the repercussions of an EU east enlargement might be greatest for Latvia, the similarity index was also calculated for four different groups of agricultural and food products. The importance of the four product categories in total agricultural exports from Latvia to the EU are as follows:

- raw products: 4 %
- minimally processed products: 45 %
- semi-processed products: 36 %
- highly processed products: 15 %.

Table 4.29 reveals especially high s_{ij} values for Latvia in combination with the NewMCs Estonia and Poland in the product category "minimally processed products". A high degree of similarity in trade can also be observed for semi-processed products with Estonia, the Czech Republic and Poland. Considering that in 1996 about 42 % of Latvian agricultural exports to the EU consisted of minimally processed products and 37 % of semi-processed products, this would indicate that Latvia might be especially affected in these two product groups (see Table 4.29). The high degree of overlap between Latvia and Estonia for these two product groups is, however, to a large extent not due to agricultural products, but related to exports of fish or fish fillets. Another important area of similarity are milk products.

The similarity index of Finger and Kreinin has revealed the percentage of overlap in exports to the EU between Latvia and each individual NewMC. However, it was not analysed whether Latvia and the respective NewMC had a comparative advantage in the products where this overlap was observed. An alternative way to identify to what degree Latvia might be affected by the new east enlargement is to assess in a first step those products for which Latvia and the NewMCs possess a comparative advantage in exports to the EU. This can be measured with the RXA. In a second step the share of Latvians´ exports to the EU in which she and the considered NewMCs have a relative revealed comparative advantage is calculated. It seems reasonable to assume that trade diversion is more likely to occur if a NewMC and a NonMC possess a competitive advantage in exports to the EU market for the same kind of products.

As can be seen in Table 4.29, an overlap in competitive advantage in 60 % of Latvian trade with the EU could be recorded for Poland and Estonia in 1996. Thus more than 60 % of exports from Latvia to the EU may be generally exposed to increased competition from the respective NewMC. The calculation based on this index confirm that Latvia might be affected most by the entry of Estonia and Poland into the EU, although the ranking of the two countries has changed.

At this point it should be noted that the analysis so far can only give a first indication with respect to the possible repercussions of the first east enlargement on Latvia. Further studies also need to consider the post-accession level of EU protection expected on those markets where a high degree of similarity has been detected between NewMCs and Latvia, since trade divergence will take place on markets with a high level of EU protection.

4.3.3 Agricultural And Food Sector Model

4.3.3.1 General approach

The further development of Latvian economy including agricultural and food sector as well as the possibility of Latvia's integration into the EU will depend mostly on possibilities to compete on internal and external markets. In order to analyse their current level of competitiveness, as well as to what might be the situation after accession three scenarios were analysed for which the same basic assumptions were made as described for Estonia. However, they may differ in detail. The simulations were carried out by employing CEASIM.

4.3.3.2 Data requirement of the model

There are five main groups of data used as input for CEASIM (see Tables 4.16 to 4.19):

Substantial part of these data were provided by Latvian Statistic Bureau including Household Budget Survey, Latvian State Institute of Agrarian Economics, Agricultural Economics Research Institute (Helsinki) and IAMO.

All set of necessary input data for model run is presented for the same base (or starting) year. In the case of present calculation the year 1996 was used as a base year.

The model calculation was made for 18 aggregate commodities, divided into agricultural output and input aggregations respectively. All these commodities are listed in the first column of Table 3.2-1.The first 13 products ranging from 'wheat' to 'rest of agriculture' are outputs. There are 5 input groups ranging from feed wheat to labour. . The last commodity ' rest of agriculture spending' is a demand aggregate which in production is part of 'rest of agricultural output'.

(12) 4.3.3.2.1 Data on production and consumption;

Data on quantities of agricultural production and human consumption (see Table 4.3) was mainly taken from the Statistical Yearbooks and results of a household budget survey.

Table 4.30: Volumes of production and consumption in Latvia in 1996 (mill. ton), and assumed annual growth rates of agricultural production and world market prices.

	Production (mill. ton)	Consumption (mill. ton)	Growth rates of technical progress	Changes in world market price
Wheat	0.176	0.191	0.040	-0.0118
Coarse grain	0.105	0.115	0.040	0.0031
Potatoes	0.412	0.376	0.018	-0.0118
Oils	0.001	0.038	0.011	-0.0046
Sugar	0.031	0.082	0.021	0.0040
Vegetables	0.149	0.240	0.010	-0.0038
Milk	0.763	0.772	0.050	0.0010
Beef	0.023	0.050	0.030	0.0030
Pork	0.032	0.074	0.040	-0.0068
Eggs	0.026	0.027	0.030	-0.0033
Poultry	0.009	0.017	0.030	-0.0046
Mutton	0.001	0.001	0.010	-0.0058
Rest of agricultural output	0.019		0.032	-0.0118
Feed wheat	0.143		0.030	-0.0118
Feed coarse grain	0.409		0.030	0.0032
Feed potatoes	0.391		0.016	-0.0118
Rest of variable input	0.236		0.025	0.0000
Labour	0.170		-0.010	0.0382
Rest of spending	0.101			

In order to reach the domestic balance of supply and total demand in 1996, domestic feed requirements were subtracted from production. In addition, production data are net of losses and seed requirements in the following crop year. The necessary information for calculating these balances was provided by Latvian State Institute of Agrarian Economics as used in the calculations of the Economic Account for Agriculture.

It is necessary to mention that in the case of sugar and oils, the volumes of sugar and rape seed oil production were calculated from the production volumes of sugar beet and rape seed applying the corresponding technical coefficients.

Consumption data for majority of products were taken from the results of Household Budget Survey, which covered 7524 households in 1996. Only consumption of wheat and coarse grain was used from Statistic Bureau as data about procurement quantities of grains for further processing.

Consumption of different types of meat was calculated by extending the structure of meat production to the total meat consumed in Latvia.

(13) 4.3.3.2.2 Prices used in the model

All prices used in model run are shown on Table 4.31. Domestic farm gate prices mostly were provided as a procurement price by Latvian Statistic Bureau. Farm gate price for coarse grains was taken as a weighted average price for barley, oats and rye. Procurement prices of different types of meat were recalculated from live into carcass weight taking the following conversion coefficients: 0.62 - for beef, .0.77 - for pork, 0.75 - for poultry and 0.63 - for mutton. Farm gate prices for rape seed and sugar beet were also converted into prices corresponding to the unit of measurement for oils and sugar. In a similar way,. procurement prices for feed products were taken on the base of expert estimation in LSIAE.

Retail prices were calculated as a average price from the monthly retail prices presented by Latvian Statistic Bureau for the purpose of analysis of consumer price indices in 1996, but price for wheat flour was converted to that of grain.

For the scenario and the scenarios world market and EU farm gate prices were taken from different sources and, if necessary, adjusted by expert judgement[15]. PSEs for Latvia as calculated by OECD were used to arrive at incentive prices when necessary. The adjustments made to prices for 2005 are based on the following assumptions:

- Farm gate price in the EU will be above those prevailing at world market for most commodities;
- Input prices for feed grains and potatoes correspond to the producer price but are lower by 25 % and 50 %, respectively.

A separate set of the EU farm gate prices was created on the basis of European Commission "Agenda 2000" program. This scenario is called 'A2'.

According to this program the prices of grain and milk have to be reduced by certain percentage, with a 100 % simultaneous compensation payments for the EU member countries.

However, in this case of Latvian accession to the EU it is possible to assume that this feasible amount of compensations will not be provided for the new member states. Therefore, impeding price decrease will have a considerable effect on Latvian agricultural production, on situation in domestic market and on development of further export-import policy.

As a consequence of decrease of grain prices, the prices of some livestock products also will not be constant. In this case it can be assumed that prices for practically all types of meat and poultry products will decline as well. The same will happen with feed grain and potatoes.

Assumed annual changes in world market prices for the purpose of model calculations are shown in Table 4.30.

Table 4.31: Set of prices for model input for 1996, thous. LVL per ton

[15] The agricultural Situation in the EU, 1996 Report;
CAP 2000: Situation and outlook;
Agenda 2000: agriculture.

	Farm gate price in Latvia in 1996	Retail price in Latvia in 1996	World market price in 1996	EU farm gate price in 1996	Farm gate price ("Agenda 2000")
Wheat	0.087	0.241	0.0756	0.0822	0.067
Coarse grain	0.067	0.214	0.0664	0.0791	0.064
Potatoes	0.046	0.098	0.0486	0.0500	0.050
Oils	0.266	0.833	0.2700	0.2750	0.275
Sugar	0.188	0.480	0.2689	0.3049	0.305
Vegetables	0.283	0.350	0.1296	0.1803	0.180
Milk	0.095	0.240	0.0983	0.1885	0.170
Beef	0.632	1.520	0.7754	1.7584	1.233
Pork	0.935	1.620	0.6350	0.8855	0.771
Eggs	0.714	1.107	0.4849	0.5060	0.441
Poultry	0.787	1.420	0.5400	0.5503	0.479
Mutton	0.619	1.620	0.7798	0.7938	0.794
Rest of agricultural output	1.000	1.000	1.0000	1.0000	1.000
Feed wheat	0.062	0.618	0.0540	0.0567	0.046
Feed coarse grain	0.060	x	0.0498	0.0569	0.046
Feed potatoes	0.025	x	0.0243	0.0250	0.025
Rest of variable input	1.000	x	1.0000	1.0000	1.000
Labour	1.335	x	2.0000	2.0000	2.000
Rest of spending	1.000	x	2.0000	2.0000	2.000

(14) 4.3.3.2.3 Initial price and income elasticities;

Price and income effects on the development of production and consumption are shown by *price and income elasticities* estimated for supply and demand sides (see Table 4.32). Initial elasticities were determined by the experts from IAMO and Institutes in the Baltic States. The first step of model calculations starts with calibration procedure for initial elasticities. The calibration

procedure implies the minimisation of weight deviations between the initial and the final calculated elasticities and imposing the symmetry and homogeneity conditions.

Table 4.32: Initial price elasticities for supply and demand

Inputs	Initial price elasticities	
	Supply	Demand
Wheat	0.4	-0.2
Coarse grain	0.45	-0.02
Potatoes	0.5	-0.1
Oils	0.5	-0.4
Sugar	0.45	-0.4
Vegetables	0.7	-0.01
Milk	0.6	-0.2
Beef	0.4	-0.5
Pork	0.8	-0.5
Eggs	0.8	-0.1
Poultry	0.8	-0.1
Mutton	0.7	-0.1
Rest of agricultural output	0.4	x
Feed wheat	-0.3	x
Feed coarse grain	-0.4	x
Feed potatoes	-0.1	x
Rest of variable input	-0.4	x
Labour	-0.003	x
Rest of spending	x	-0.1

(15) 4.3.3.2.4 Government support or subsidies paid to agriculture;

Government support policy usually has considerable influence on production potential of domestic producers and their competitiveness on external and internal markets. Therefore, all the government support measures, which can be evaluated as direct, indirect or general subsidies, should be taken account in the calculations of incentive prices, when competitiveness of domestic products is evaluated.

The level of *incentive prices* shows the definite level of prices, at which producers can sell their products on the market with the assistance of national government. From this point of view, the

above mentioned subsidies can be considered as an indication of government efforts to encourage domestic products to enter the market.

Subsidies allocated to agriculture (LVL 9 million 1996) were split between the considered aggregate groups of products, to be used as input data in farmers' incentive price calculations. The allocation for year 1996 was made according to the type of activity supported and product group concerned. The results of this allocation are given in Table 4.33).

Table 4.33: Assumed protection rates for base and simulation years, mill. LVL.

	Direct subsidies		Indirect subsidies		General support	
	1996	2005	1996	2005	1996	2005
Wheat	0.17	0.48	0.031	2.44	0.3	0
Coarse grain	0.12	0.44	0.039	1.9	0.25	0
Potatoes	0.35	0.59	0.049	0.84	0.95	0
Oils	0	0	0	0.19	0.004	0
Sugar	0.029	0.7	0.005	1.3	0.1	0
Vegetables	0	0	0	0	0	0
Milk	0	1.7	0.214	2.4	1.5	0
Beef	1.774	1.97	0.044	1.3	0.45	0
Pork	0	0.2	0.084	0.7	0.9	0
Eggs	0	0	0.046	1.3	0.595	0
Poultry	0	0	0.021	0.32	0.18	0
Mutton	0	0	0	0	0	0
Rest of agricultural output	0	0	0	0	0	0
Feed wheat	0.136	0	0.025	0	0.24	0
Feed coarse grain	0.092	0	0.031	0	0.2	0
Feed potatoes	0.276	0	0.039	0	0.76	0
Rest of variable input	0	0	0	0	0	0
Labour	0	0	0	0	0	0

Government direct and indirect support measures for year 2005 were calculated taking into account the two main assumptions regarding:

- *agricultural support.* Total amount of subsidies for agriculture is set by the law "On agriculture" on the level not less than 3 % of the budget.
- *further development of Latvian economy* and increase of the State budget. Latvian Ministry of Finance has made forecasts on GDP growth in Latvia for the time period 1996 - 2005: the average GDP growth rate is assumed at 4 % per year. State budget is assumed to increase in alignment with GDP growth;

On the basis of these two assumptions the total amount of agricultural subsidies in 2005 was calculated, and subsequently was split between the aggregate product groups.

4.3.3.3 Model results

There are the following set of indicators which can be used for analysis of price level, competitiveness and self-sufficiency in year 2005:

1) the calibrated matrix of price and income elasticities;
2) price levels according to each of the scenarios described above;
3) supply and demand for product aggregates according to each of the above described scenarios;
4) net export according to the above described scenarios;

The calibrated matrixes of elasticities for supply and demand are calculated with the purpose to analyse of price influence on changes in production and consumption. The production (Table 4.34) and consumption volumes for 2005 (Table 4.35) are calculated on the basis of calibrated elasticities and forecast incentive values (or world prices in case of FWM scenario) or retail prices.

Table 4.34: Supply forecasts for the base run and the three scenarios in the year 2005[1)]

	Unit of measurement	'BASE'	'EU'	'A2'	'FWM'
WHEAT	mill. mt	0,247790	0,234510	0,233860	0,232500
	in %		-5,4	-5,6	-6,2
CGRAIN	mill. mt	0,167180	0,180200	0,175500	0,170090
	in %		7,8	5,0	1,7
POTAT	mill. mt	0,447170	0,446910	0,486810	0,517730
	in %		-0,1	8,9	15,8
OILS	mill. mt	0,001400	0,001270	0,000900	0,000570
	in %		-9,3	-35,7	-59,3
SUGAR	mill. mt	0,042800	0,047740	0,047680	0,047400
	in %		11,5	11,4	10,7
VEGET	mill. mt	0,159280	0,098030	0,106920	0,101100
	in %		-38,5	-32,9	-36,5
MILK	mill. mt	1,232850	2,331810	2,072430	1,432620
	in %		89,1	68,1	16,2
BEEF	mill. mt	0,031420	0,100210	0,081980	0,048940
	in %		218,9	160,9	55,8

PORK	mill. mt	0,044200	0,042100	0,041530	0,038320
	in %		-4,8	-6,0	-13,3
EGGS	mill. mt	0,034890	0,022360	0,023120	0,028290
	in %		-35,9	-33,7	-18,9
POULTRY	mill. mt	0,011420	0,005810	0,006170	0,009400
	in %		-49,1	-46,0	-17,7
MUTTON	mill. mt	0,000710	0,000760	0,000830	0,001040
	in %		7,0	16,9	46,5
RAO	mill. LVL	0,023480	0,021190	0,022820	0,024860
	in %		-9,8	-2,8	5,9
FWHEAT	mill. mt	0,279250	0,370280	0,337880	0,270020
	in %		32,6	21,0	-3,3
FCGRAIN	mill. mt	0,763800	1,060110	0,977410	0,707010
	in %		38,8	28,0	-7,4
FPOTAT	mill. mt	0,619860	0,550200	0,541000	0,531830
	in %		-11,2	-12,7	-14,2
RVI	mill. LVL	0,306410	0,333720	0,321810	0,293650
	in %		8,9	5,0	-4,2
LABOR	mill. head	0,155200	0,155910	0,155820	0,155210
	in %		0,5	0,4	0,0

[1)] The numbers in the second row below the commodity are changes:
in the column ‘BASE’ between the the base run and the values in 1996
in the other three columns between the corresponding scenario and the column ‘BASE’; in percent

Source. Own simulations

Table 4.35:Demand forecast for 2005

	Unit of measurement	'BASE'	'EU'	'A2'	'FWM'
WHEAT	mill. mt	0.17547	0.18479	0.18433	0.17778
CGRAIN	mill. mt	0.10391	0.10437	0.10451	0.10454
POTAT	mill. mt	0.34112	0.36361	0.35758	0.34968
OILS	mill. mt	0.03524	0.04098	0.03915	0.03604
SUGAR	mill. mt	0.07034	0.06549	0.06650	0.06659
VEGET	mill. mt	0.21658	0.21423	0.21574	0.21792
MILK	mill. mt	0.67251	0.63286	0.63723	0.66065
BEEF	mill. mt	0.04505	0.03437	0.03765	0.04047
PORK	mill. mt	0.07807	0.09076	0.08833	0.09030
EGGS	mill. mt	0.02452	0.02528	0.02521	0.02531
POULTRY	mill. mt	0.01603	0.01635	0.01633	0.01645
MUTTON	mill. mt	0.0014	0.00136	0.00137	0.00140
ROSP	mill. LVL	0.09143	0.08509	0.08479	0.08444

Source. Own simulations

The predictable values of incentive prices for 2005 are defined on base of forecasts of domestic and EU farm gate prices (see Table 4.36).

Net export (see Table 4.39) is calculated as a difference between quantities produced and consumed taking into account the required amount of feed for some of the crops such as wheat, coarse grain and potatoes. Net export indicators reflect the degree of self-sufficiency of agricultural production on domestic market for each scenario in the Model.

4.3.3.4 Results of simulating impacts of alternative policies

Price forecasts and potential competitiveness of Latvian products

According to the results of model calculations the forecasts of different set of prices were obtained on the base of elaborated scenarios and assumptions about changes in world market prices. As it is possible to note that an essential difference between levels of farm gate and incentive prices will be retained for all products which are and will be subsidised by National government. Only in case of free world market scenario, if price level in the EU will decrease reaching the level of world market price, there will be no differences between farm gate and incentive prices any more, because of abolition of all types of government support.

Besides, domestic and EU farm gate prices as well as world prices will go down practically for all main agricultural and food products with the exception of r coarse grain, milk, beef and labour. This difference in price development can be explained by assumptions in changes of world market prices, which has an essential influence on the price behaviour in the EU and Latvia as well.

Table 4.36: Level of farm gate prices for Latvia under different scenarios in 2005

	Unit of measurement	'BASE'	'EU'	'A2'	'FWM'
WHEAT	thous. LVL / mt	0.079	0.075	0.068	0.068
CGRAIN	thous. LVL / mt	0.069	0.081	0.068	0.068
POTAT	thous. LVL / mt	0.041	0.045	0.050	0.044
OILS	thous. LVL / mt	0.255	0.264	0.275	0.259
SUGAR	thous. LVL / mt	0.197	0.315	0.305	0.279
VEGET	thous. LVL / mt	0.278	0.176	0.180	0.125
MILK	thous. LVL / mt	0.096	0.189	0.170	0.099
BEEF	thous. LVL / mt	0.653	1.779	1.233	0.797
PORK	thous. LVL / mt	0.897	0.848	0.771	0.597
EGGS	thous. LVL / mt	0.700	0.492	0.471	0.471
POULTRY	thous. LVL / mt	0.765	0.528	0.518	0.518
MUTTON	thous. LVL / mt	0.579	0.754	0.794	0.740
RAO	LVL / LVL	0.898	0.898	1.000	0.898
FWHEAT	thous. LVL / mt	0.057	0.051	0.049	0.049
FCGRAIN	thous. LVL / mt	0.061	0.058	0.051	0.051
FPOTAT	thous. LVL / mt	0.023	0.023	0.025	0.022
RVI	LVL / LVL	1.000	1.000	1.000	1.000
LABOR	thous. LVL / head	1.870	2.535	2.000	1.870

Source: Model calculations

Table 4.37: Level of incentive prices for 2005

	Unit of measurement	'BASE'	'EU'	'A2'	'FWM'
WHEAT	thous. LVL / mt	0.095	0.090	0.083	0.068
CGRAIN	thous. LVL / mt	0.089	0.101	0.088	0.068
POTAT	thous. LVL / mt	0.044	0.048	0.053	0.044
OILS	thous. LVL / mt	0.626	0.635	0.646	0.259
SUGAR	thous. LVL / mt	0.251	0.368	0.358	0.279
VEGET	thous. LVL / mt	0.278	0.176	0.180	0.125
MILK	thous. LVL / mt	0.100	0.194	0.174	0.099
BEEF	thous. LVL / mt	0.755	1.881	1.335	0.797
PORK	thous. LVL / mt	0.922	0.872	0.796	0.597
EGGS	thous. LVL / mt	0.749	0.541	0.520	0.471
POULTRY	thous. LVL / mt	0.801	0.565	0.555	0.518
MUTTON	thous. LVL / mt	0.579	0.754	0.794	0.740
RAO	LVL / LVL	0.898	0.898	1.000	0.898
FWHEAT	thous. LVL / mt	0.057	0.051	0.049	0.049
FCGRAIN	thous. LVL / mt	0.061	0.058	0.051	0.051
FPOTAT	thous. LVL / mt	0.023	0.023	0.025	0.022
RVI	LVL / LVL	1.000	1.000	1.000	1.000
LABOR	thous. LVL / head	1.870	2.535	2.000	1.870

Source: Model calculations

However, the comparison of Latvian domestic and the EU (or world) prices shows that domestic farm gate prices will be lower then those in the EU, and even world market prices, only for such products as potatoes, milk, beef and mutton in 2005. Only incentive price for mutton will be even lower than world market price. However, in case of Latvia there is no sufficient production potential for sheep-breeding. Therefore only milk, beef and potatoes will be considered as advantageous or perspective direction of agricultural operations, with regard to the analysis of further price developments in the EU and the World.

It is necessary to mention that labour costs in Latvia will be also be lower then the European level. This obstacle can be considered as advantage of domestic agricultural business when lower labour costs reduce total production costs.

With regard to the producer prices, it is possible to make a statement, that if domestic farm gate price (or incentive price in case of existing national subsidies) will be below the level of the EU or world market (in case of 'FWM' scenario) prices, there are more substations to conclude that these domestic products will be able to have comparatively high competitive power in the EU or world market. In this respect the potential export will be able to increase considerably for such above mentioned products as potatoes, milk and beef on the EU market, and for beef even on world market in 2005.

4.3.3.5 Further development of production and consumption processes in Latvia

Four different scenarios developed in CEASIM give the possibility to analyse the strengths and weaknesses as well as possible effects of Latvian accession in the EU.

According to the model calculations, if growth rate of technical changes will be kept as a constant for all these scenarios, only production of milk, beef and mutton will go up in Latvian animal husbandry after the accession of Latvia in the EU. At the same time consumption of milk and beef will decrease in 2005. The calculated forecasts of net export shows that only these two products and also wheat, coarse grains and potatoes could be exported to the EU even in case if EU prices will fall down to the level of world market price.

Further development of crop production is characterised by increasing of sugar production by 11 %, coarse grain production - by 6 % and potatoes (depending from price level) up to 8 % - 15 % in case of Latvia joining the EU.

Agricultural employment would decrease in Latvia after accession as well.

Both EU scenarios show that production of grain for feed will increase considerably. They will substitute feed potatoes, the production of which will go down. However, comparing 'FWM' and 'BASE' scenarios, production of grain and potatoes as feed crops will reduce.

Table 4.38: Retail prices for 2005, thous. LVL per ton

	Unit of measurement	'BASE'	'EU'	'A2'	'FWM'
WHEAT	Thous. LVL / mt	0.220	0.215	0.208	0.208
CGRAIN	Thous. LVL / mt	0.220	0.232	0.219	0.219
POTAT	Thous. LVL / mt	0.088	0.091	0.096	0.090
OILS	Thous. LVL / mt	0.799	0.808	0.819	0.803
SUGAR	Thous. LVL / mt	0.505	0.622	0.613	0.586
VEGET	Thous. LVL / mt	0.345	0.242	0.246	0.191
MILK	thous. LVL / mt	0.242	0.336	0.316	0.246
BEEF	thous. LVL / mt	1.571	2.697	2.151	1.714
PORK	thous. LVL / mt	1.555	1.505	1.428	1.254
EGGS	thous. LVL / mt	1.085	0.877	0.856	0.856
POULTRY	thous. LVL / mt	1.380	1.144	1.134	1.134
MUTTON	thous. LVL / mt	1.515	1.690	1.730	1.676
ROSP	LVL / LVL	1.000	2.000	2.000	2.000
INCOME		0.927	0.857	0.873	0.912

Table 4.39: Net export in 2005, mill. ton

	Unit of measurement	'BASE'	'EU'	'A2'	'FWM'
WHEAT	mill. mt	-0.2069	-0.3206	-0.2883	-0.2153
CGRAIN	mill. mt	-0.7005	-0.9843	-0.9064	-0.6415
POTAT	mill. mt	-0.5138	-0.4669	-0.4118	-0.3638
OILS	mill. mt	-0.0338	-0.0397	-0.0382	-0.0355
SUGAR	mill. mt	-0.0275	-0.0177	-0.0188	-0.0192
VEGET	mill. mt	-0.0573	-0.1162	-0.1088	-0.1168
MILK	mill. mt	0.5603	1.6990	1.4352	0.7720
BEEF	mill. mt	-0.0136	0.0658	0.0443	0.0085
PORK	mill. mt	-0.0339	-0.0487	-0.0468	-0.0520
EGGS	mill. mt	0.0104	-0.0029	-0.0021	0.0030
POULTRY	mill. mt	-0.0046	-0.0105	-0.0102	-0.0071
MUTTON	mill. mt	-0.0007	-0.0006	-0.0005	-0.0004

Source: Model calculations

A further increase in consumption of grain (bread and cereal products) and rape seed will be expected in Latvia after accession to the EU. But consumption of sugar and potatoes will decrease. This type of change in consumption will influence the creation of new structure of consumption in Latvia, which will be more related with consumption structure in the EU.

4.3.3.6 Changes in self-sufficiency levels

Used type of data for supply and demand quantities in the model input allow us to make some comparative analysis between domestically produced product volumes and demand on Latvian internal market. Recalculated consumption of bread and cereals into wheat demand, production of sugar beet and rape seed into sugar and rape seed oil production correspondingly allows for a simple comparison of determined production and consumption quantities for 2005.

Comparing the total production and consumption quantities for year 1996 as a starting year for the simulation, it is necessary to take into account that domestic producers are able to meet domestic demand only for potatoes. All other types of products had to be imported in order to provide needs of population in the main agricultural and food products. The cheaper imported products created a strong competition for more expensive domestic products, because of low purchasing power of population and relatively high production costs in Latvia.

However, model shows that in the case of accession of Latvia in the EU only increased volumes of dairy and beef will be allowed to be exported to European market (see Table 4.39). In case of 'FWM' scenario export of eggs will also take place. If Latvia will not join the EU, then milk and eggs will be exported.

Production of grain and potatoes will also exceed the consumption level according to the all expected scenarios. But feed requirements for these products will not make their export possible.

4.4 Conclusions

In this paper the present situation is described more with the respect to short term competitiveness, because the effect of privatisation is still working itself through the whole system: primary agricultural production, processing and trade. Also some aspects of long run developments are discussed to evaluate the time after accession.

A more in depth analysis of competitiveness of Latvian agricultural sector after accession into the EU, it is necessary to compare costs of production, processing and trade. A different, unknown, cost structure would emerge in Latvia if distortions like CAP in the EU would be applied, and on the contrary, if they were removed for the EU, and the market were only subject to forces of comparative advantages, the cost structure in the EU would change considerably. Also the payments from structural funds for the EU farmers and the investment necessary for Latvian farmers, to be at the same level as their colleagues in the EU, should be estimated.

It could be useful to distinguish between the two levels of competitiveness: **national or sectoral**, because indicators could change their level of importance. The next item to discuss is what is more important: a **single or a differentiated commodity.** And at least in the model the maximisation of profits are envisaged, which is attainable by the **sector productivity growth**, with productivity growth per unit and increase in physical terms of production, **or by improving export performance.**

According to this definition, the costs of primary production, closely related to up-stream industry, processing and trade, are one of the parameters which could be used for estimating international competitiveness. This idea is supported by *Jerry A. Sharples* stating that: 'If firms and industries cannot survive by selling at the going price, they are not competitive. If they are able to survive and increase market share, they have become more competitive'.

The best strategy for Latvia would be to maintain an open trade regime and a low price support policy in order to sustain and encourage stronger competitiveness. Putting more emphasis on improving of economic efficiency of the whole agro-food chain would enhance its competitiveness and improve the conditions of trade for agricultural producers and processors.

5 STUDY ON LITHUANIA

5.1 Determinants of Competitiveness : Porter Diagram

5.1.1 Current Situation

Geography and Population

Lithuania is the largest of the Baltic Republics, covering an area of 65.3 thousand square kilometres along the east coast of the Baltic Sea. The country is situated at one of the most important cross-roads in Europe, which provides Lithuania with many natural communications advantages. The country is bordered on the north by Latvia, on the east and south by Belarus, on the south-west by Poland and the Kaliningrad region of Russia, and on the west by the Baltic Sea (99 km coastline). It stretches for 373 km from east to west and for 276 km from north to south.

The climate in Lithuania is described as transitional, varying from maritime in coastal areas to continental in the east of the country. The mean annual temperature varying from 7 to 6 degrees Celsius, but ranges from minus 4.9 degrees Celsius in January to 17 degrees in July. The annual precipitation varies from 750 mm in the western part of the country to 550 mm in the eastern part. The amount of precipitation during growing season varies between 320-470 mm, when farming often suffers from the excess of moisture. The long autumns and winters as well as late spring frosts result in a relatively short growing season of 6-7 months.

Lithuania has the largest population of the three Baltic Republics with 3.72 million inhabitants, 32 % of whom live in rural areas. The population density in Lithuania is low compared to other European countries, and was estimated at 57 persons per square kilometre in 1997. The composition of the population is 81 % Lithuanian, 8 % Russian and 7 % Polish, with the remaining 4 % being mainly of Belarus, Ukrainian, Jewish and other origin.

Administratively, Lithuania is divided into 10 provinces and 44 regions with 449 local administration units. There are 111 towns in Lithuania. The largest towns are: Vilnius (1996 population 573.2 thous.), Kaunas (410.8 thous.), Klaipeda (201.5 thous.), Siauliai (146.7 thous.) and Panevezys (132.2 thous.).

Whereas the overall population in Lithuania has declined during the transition period (because of falling natural rates of increase and emigration), the rural population started to increase, albeit slowly, around 1992. In 1997, about 32 % of the Lithuanian population lived in rural areas. Agriculture's share of total employment increased from 18 % in 1990 to about 24 % in 1996, thus agriculture has acted as an important employment buffer during the transition period. To some extent, the increase in employment in agriculture reflects the nature of land restitution in Lithuania and the lack of alternative employment opportunities during this period. However, further developments in agriculture, especially related to the establishment of well - functioning land market and consolidation of farm operations will lead to shading labour from agriculture and increase in rural unemployment. For these reasons the development of rational sustainable agricultural and rural policies are gaining especial importance and draw attention of policy makers as well as broad groups of rural population.

General Economic Indicators

The transition from the centrally planned economy to a market economy has led to pronounced changes in the Lithuanian economy. Recorded Gross Domestic Product (GDP) fell dramatically in Lithuania during the early 1990s, with output contracting by about two-thirds between 1990 and 1993 (Table 5.1). In 1992 in particular, GDP plunged by 34 per cent as a result of a combination of greater product specialisation by some enterprises and a halt in production operations in others. In the second half of 1994, the Lithuanian economy showed the first signs of recovery, and GDP grew by 1 % that year. That slight upturn, the first in over five years, accelerated in 1995, when economic activity grew by 3.1 %, according to preliminary estimates. The economic upturn has continued in 1996, with GDP growth of 3.6 %.

Table 5.1: Indicators of performance in the national economy, 1990-1996, per cent

Indicators	1990	1991	1992	1993	1994	1995	1996
Macroeconomic indicators							
GDP at current prices, M Lt	n.a.	n.a.	3386.7	11107.9	16980.7	23829.0	31449.2
GDP per capita, Lt	n.a.	n.a.	905	2978	4564	6414	8478
Growth in real GDP	-6.9	-15.0	-39.0	-16.2	1.0	3.0	3.6
Inflation rate, average	16.1	224.0	1162.7	291.4	72.2	39.6	25.0
Inflation rate, year end		376.0	1154.1	189.9	44.8	35.5	13.1
Nominal exchange rate/$	16	110	170	4.24	3.97	4.00	4.00
Real exchange rate index,	446	653	243	113	58	43	35
Current account balance (local	-1136.0	35710	30617.0	-1091.0	-1278.0	-900.0	
share of GDP	n.a.	n.a.	3.2	-6.2	-4.2	-3.8	-7.5
Gross Industrial Product	-2.6	-3.5	-30.0	-34.0	-28.0	-7.8	
Unemployment rate	n.a.	0.3	1.3	4.4	3.8	6.1	7.1
Share of GDP, per cent:	n.a.	n.a.	100.0	100.0	100.0	100.0	100.0
agriculture and forestry			11.6	11.0	7.3	9.3	12.5
industry			39.4	30.4	25.8	29.0	24.4
Construction			9.3	7.8	8.7	6.7	7.0
Trade			4.5	16.1	23.1	23.4	22.1
Services			35.3	34.8	35.0	31.5	33.9
Monthly wage:							
average	n.a.	n.a.	n.a.	166.0	325.0	479.0	621.0
agriculture and forestry	n.a.	n.a.	n.a.	85.0	157.0	288.0	381.0

n.a.: not available.

Currency: 1990-91: roubles; 1992: talonas, (1 talonas is equal to 1 rouble);

1993-95: litas (1 litas is equal to 100 talonas).

Source: Department of Statistics, Bank of Lithuania, Labour Exchange, Vilnius.

Gross Industrial Product (GIP) fell by almost 30 % each year between 1992 and 1994, but there was a substantial improvement in 1995. Gross agricultural output, which had increased by about 2 % in 1989, fell by over 50 % between 1990 and 1994. But that trend was reversed in 1995, when preliminary estimates suggest that agricultural output increased by 1.8 %.

Substantial structural changes have taken place in the Lithuanian economy, with the state's share of GDP falling sharply, and the private sector's share expanding rapidly. At the same time, industry's contribution to GDP fell from 40 % in 1992 to less than 25 % in 1995, while the service sector accounted for over 50 % of GDP in 1995. Following the dramatic fall in agricultural output in the early 1990s, agriculture's share of Lithuanian GDP fell from a high of 28 % in 1990 to 9 % in 1995.

Despite the sharp fall in economic activity since 1991, employment has remained remarkably resilient compared to many of the other countries in transition. A substantial decline in real wages during the early transition years also helped to avert a rapid rise in the unemployment rate in Lithuania. The level of civilian employment declined steadily between 1989 and 1995 due to the rapid structural changes that were taking place in the Lithuanian economy. Employment in industry and agriculture, which together employ more than half the economically active population, fell to less than 0.6 million in 1995 from 0.8 million in 1989. Even so, the agricultural sector's share of total employment increased from 17.8 % in 1990 to 23.5 % in 1995. The official unemployment rate, although low relative to OECD countries, jumped from 0.3 % in 1991 to 6.1 % in 1995. This increase in the official rate of unemployment does not fully reflect the high level of hidden unemployment in the economy, however.

After recording surpluses in both 1991 and 1992, Lithuania’s current account has been in deficit in every year since 1993. While exports shrank in 1993 and 1994, imports grew rapidly, resulting in a deficit of 1 278 million litas in 1994. The deficit fell to 900 million litas in 1995 and continued to fall in 1996.

Monetary Policy

The main goals of the Bank of Lithuania is to stabilise the currency and to reduce inflation. The national currency unit - Litas has been introduced in June 1993 at a floating exchange rate. To ensure the stability of the national currency in April 1994 the Bank of Lithuania has adopted currency board arrangement under which the exchange rate was fixed against the US-dollar of Litas 4 to US$ 1.

Considering the development of the inflation rate, the monetary policy had been to a lower degree successful, reducing the CPI as a proxy for the inflation rate from 1020.0 % in 1992 to 13.1 per cent in 1996. In 1997 the inflation rate continued to decline and was 8.7 per cent.

From the point of view of competitiveness the fall of the inflation rate in Lithuania had not been enough. For example the real exchange rate between Lithuania and Germany falls dramatically: the real exchange rate had in 1995 the value of 60.4 % compared with 1993. A falling real exchange rate influences the competitiveness of a country negatively, because domestic products are getting more expensive against foreign goods.

Trade Policy and Trade Agreement

In the early transition years, trade was mainly regulated by quantitative restrictions (quotas, licences, and bans), but in 1993 these measures were abolished and a more consistent and transparent trade regime was introduced through a system of import and export tariffs.

Following independence, Lithuania set about negotiating trade agreements with a number of trading partners. Bilateral agreements were signed with many OECD countries, as well as with central and eastern European countries and with many former Soviet republics.

A Free Trade Agreement was signed with the EU, under which trade between both regions was given preferential treatment. It came into effect in January 1995. Lithuania has also signed an Association Agreement with the EU, which gives it the same status as other associated countries in central and eastern Europe. The Europe agreement has come into force on February 1, 1998 after ratification in the Lithuanian and the EU member-states parliaments. In addition to allowing greater liberalisation of trade, these agreements also facilitate greater co-operation in areas such as customs administration, product standardisation and trade policies. However, Lithuanian exporters have faced considerable difficulties in filling the designated quotas due to problems in certification, product quality, lack of supply, packaging deficiencies and administrative procedures. In December 1995 Lithuania officially applied for EU membership.

A Baltic free trade agreement was signed with Latvia and Estonia in 1994, but the great divergence in agricultural and trade policies between the three countries prevented trade in agricultural and food products from being included in the Agreement. On 16 June 1996, the three Baltic countries signed an agreement on free trade in agricultural products, which came into force on 1 January 1997.

Lithuania is currently negotiating its accession to the World Trade Organisation and has already taken all necessary steps towards compliance of its trade policies with the WTO disciplines and the Agreement on Agriculture concluded in the Uruguay Round of negotiations .

With regard to competitiveness Lithuania would probably benefit most if it continued to abolish further trade restrictions, while at the same time improving the economic efficiency of the agro-food sector.

Government Policy

The establishment of a market economy requires the redefinition of the previously all-encompassing role of the state. Institutions taken for granted in market economies have to be created. According to Walter Eucken's „Ordnungstheorie" the main institutional conditions in a market economy are competition, safeguarding of price stability, open markets, private ownership, freedom of contract, full liability, and stability of the economic policy.

One of the main task of the government is to ensure a free and fair competition in goods and services markets and the promotion of competitiveness of Lithuanian companies in foreign markets.

Competition in the agro-food sector is to be promoted by privatisation of monopolistic state-owned processing and agro-service enterprises and by establishing a number of independent companies. These companies are competing both in buying raw materials and in selling processed goods.

All companies, including those of the agro-food sector, are subject to Lithuanian competition legislation, which came into force on 1 November 1992. Under this legislation, the Lithuanian

government removed all legal barriers to new businesses and eliminated restrictive licensing requirements for production and distribution. In May 1995, the Agency for Competition and Consumer Rights Protection was founded on the basis of previously operated Price and Competition Council. Its main function are to formulate and implement policies that ensure competition and anti-monopolistic behaviour, to monitor price developments in domestic and foreign markets and to provide this information to government dealing with price legislation. In addition to this, the Agency is entitled to formulate and implement policies for the protection of consumers and to participate in the preparation of pricing policy as regulated by the state. This, however, bears the danger of severe governmental interference with the price-building process, leading to market distorting effects and hampering the creation of efficiency in the whole Lithuanian economy.

The measures for the safeguarding of price stability are not agricultural policy; they are more related to the state monetary policy, which has been discussed earlier.

Freedom of contract was a feature untypical for the command economy in the former USSR, but it became typical for the newly independent states with market economies. Nevertheless it took some time to learn how to deal with the freedom of contract.

From the above mentioned conditions, ownership rights were those which were affected mostly by the political changes. The basis of privatisation was laid down in the „Law on the Procedures and Conditions of the Restitution of Ownership and Conditions of the Restoration of the Rights to the Existing Property“ in July 1991.

Under the conditions of full liability each entrepreneur should be responsible for his activities. This means that the state should not recover or capitalise the debts, as it did during the USSR times. The changes in ownership and the establishment of new legal forms were already accomplished through the process of privatisation. The precondition - the *'Law on Enterprise Bankruptcy'* in Lithuania was passed on 15 September 1992. However, only few enterprises have undergone this process. In 1994 the Law on Bankruptcy was tightened, which resulted in bankruptcy proceeding being initiated against some large food processing companies.

Open markets will be discussed in the chapter on agricultural policy and foreign trade.

Apart from the institutional conditions offered by 'Ordnungstheorie', such items as the development of infrastructure - research and development, training and extension and at last quality standards and sanitary control, which plays the major role in the countries' international competitiveness, should be monitored at national level. The description of the development of infrastructure is provided in the OECD Country report: Lithuania, 1996.

In transition countries the stability of the economic policy is highly dependent on the political situation, while in developed countries, and especially in the EU, it is much more difficult for politicians to change the economic situation. From this point of view, economically stable countries are more competitive.

Foreign Investments

Foreign investment is important not only as a source of capital but also as means of transferring foreign experience, technology and management skills. As to competitiveness foreign direct investment can serve as an indicator for the attractiveness of a country for internationally mobile production factors.

The rules governing foreign direct investment (FDI) in Lithuania are relatively liberal and until mid-1995 were enshrined in the Law on Foreign Investments, which was introduced in December 1990. The law effectively permits foreign companies to repatriate all after-tax profits without any restrictions, and offers various tax incentives to foreign investors.

In mid-1995, a new Law on Foreign Capital Investment was passed, which broadly retained the profits tax concessions granted under the earlier Law on Foreign Investments, but restricted tax relief in future to investments exceeding US$2 million. In addition, the foreign investor must have acquired at least a 30 per cent share of the enterprise and be able to prove that the capital invested has come from abroad. Such new enterprises are completely exempt from profits tax for the first three years and pay a reduced rate of 50 per cent over the following three years.

Between 1987 and 1993, some 2 691 joint ventures and 778 foreign-owned companies were registered, and the capital provided by foreign investors during that period totalled 325 million litas. In mid-1995, there were 4 648 joint ventures operating in Lithuania, almost 60 per cent of whose capital originated in European Union countries. Most foreign direct investment is concentrated in the service sector, such as hotels, restaurants, wholesale distribution and the retail trade.

As a result of the specific process of privatisation in food industry and the remaining restrictions on the further sales of shares obtained by farmers under favourable conditions, there was little change in the decision making structures and a transparent ownership structure has not been created. The overall situation for that reason is not very attractive for foreign investment. On the whole, level of FDI in food sector is rather modest. As of the end of 1996, the average share of foreign capital in the food chain was under 10 per cent, although in such industries as tobacco, alcohol and confectionery it was dominant.

There are several other reasons for the low level of foreign direct investment in agri-food sector in Lithuania, such as the relatively small size of the domestic market, uncertainties over the supply of crucial inputs, especially oil and gas, and the more difficult operating environment for foreign investors (less stable economy, changing rules and more restrictions on foreign investments). On the positive side, however, Lithuania has lower labour costs than most Western European countries, enhanced cost competitiveness due to the undervalued currency, as well as enjoying political stability and the communications advantages associated with its geographical position.

Situation in the Agri-food sector

5.1.2 Factor Conditions

Land

From the point of view of natural resources, Lithuania has relatively few other than farmland. For this reason, the country’s economy heavily depends on the farming and food sector development. Around 54 % of the total territory is agricultural land of which 74 % is arable land and pastures. A large part of current agricultural land was drained to avoid the excess moisture, and under current fragmentation of land ownership maintenance and reconstruction of drainage systems as well as other land reclamation activities become problematic to carry out.

Main soils in Lithuania are not of a high productivity (Lithuania belongs to the non-black soil area). Most agricultural land is located on sandy loam (33 %) and clay loam (34 %) soils which are of high acidity (45 % of the soils have pH values of less than 5.5). The acid soils predominate in the eastern and western part of Lithuania and require for periodic liming. There are widespread regional differences in soil quality in Lithuania. The most productive drained soddy gley soils are situated in the central part of the country. In Eastern Lithuania sandy hills and woodlands prevail. Consequently farming conditions are quite poor. Most of highly humid land having been drained, but at the moment, drainage systems because of the lack of financial means are in a poor condition, which leads to a drop of crop productivity.

In general, climate and soil conditions for intensive agriculture are not very favourable. Nevertheless, in the Central part of Lithuania there are rather good conditions for the growing of winter/summer cereals, rape seed, some of field vegetables, potatoes, fruits and berries, roots crops, flax and grass.

Labour

Since 1990, major changes in employment occurred. It were related with the transformation of economy. The amount of unemployed population has been increasing since 1991 and according to the official statistics unemployment rate in 1996 reached 7.1 per cent. Obviously, hidden unemployment exists in Lithuania as well. The rate of unemployment is rather different over the territory of Lithuania. The highest rate of unemployment in 1996 was in Taurage province (12.1 per cent) and in the province of Alytus (9.1 per cent). The total amount of employed population decreased during 1992-1996 (from 1855.2 to 1659.0 thousands). Also, differentiation among employed population by firms and companies of different ownership, can be seen. In 1992, 58 per cent of total amount of employed population was employed by the state and public enterprises, while in 1996 this share made up only 33 per cent.

Major changes in employment took place in agricultural sector, where the number of employed population increased from 19.5 per cent in 1992 to 24.1 per cent in 1996. The increase of employment during the same period can be seen in wholesale and retail trade sector (from 9.6 to 12.7 per cent), while the amount of employed population shrunk in industry and construction.

5.1.3 Firm Structure

The restructuring and privatisation of the agricultural sector were carried out in two ways: land was returned to its previous owners (restitution) and non-land assets were transferred to the private sector in exchange for investment vouchers, green vouchers and cash.

As a result of land reform and asset privatisation, there are significant changes in the number and size of farms and in land use distribution among different groups of agricultural producers (Table 5.2.). In 1989, prior to the reform, there were 834 collective and 275 state farms with an average size of 2040 hectares, 2300 “peasant law” family farms with an average size of 14 hectares, and nearly 466 thousand household plots with an average size of 0.7 ha. By January 1, 1996, there were only 2000 large scale farms, established on the basis of privatisation and restructuring of former state and collective farms, while the number of family farms had increased to over 165 thousand.

Table 5.2: Dynamics of number of agricultural land users and farm size, 1991-1996, Jan.1

	1991	1992	1993	1994	1995	1996
Agricultural companies, thousand			4.3	3.5	2.9	2.0
Average size, ha			477.0	450.0	378.0	400.0
Family farms, thousand	2.3	5.1	71.5	111.5	134.6	165.8
Average size, ha	14.1	9.4	8.9	8.8	8.5	7.8
Household plots, thousand	465.8	479.0	413.1	404.0	396.7	378.4
Average size, ha	0.7	1.9	2.1	2.1	2.1	2.2

In 1991, prior to the reform, state and collective farms used 89.7 % of agricultural land, household plots - 8.9 %, and first family farms - another 1 %. As a result of restructuring and land reform, the share of land used by successors of state and collective farms - agricultural companies has declined to 23.9 %, while the share used by family farms rose to 37.2 % and that of household plots remained stable (Table 5.3.).

Table 5.3: Distribution of agricultural land by main user groups, 1991 - 1996, Jan. 1, %

Agricultural land users	1991	1992	1993	1994	1995	1996
All users	100.0	100.0	100.0	100.0	100.0	100.0
State & collective farms	89.7	71.7	0.0	0.0	0.0	0.0
Agricultural companies	0.0	0.0	51.9	41.2	32.2	23.9
Household plots	8.9	25.7	25.9	26.5	27.9	27.5
Family farms	1.0	2.2	17.9	25.9	32.1	37.2
Other users of state land	0.0	0.0	3.8	5.9	7.3	10.8
Urban dwellers' garden plots	0.4	0.5	0.5	0.5	0.6	0.6

The general farming structure emerging in Lithuania can therefore be described as one of small-scale farming. Of the "peasant law" farms established prior to land reform, 28 % were larger than 20 ha in size. After 1993, the share of farms in this size group declined to under 10 %. The share of farms ranging from 3 to 20 ha remained close to 70 % throughout the reform period (Table 5.4).

Table 5.4: Distribution of family farms by size, 1992-1996, per cent

Farm groups by size	1992	1993	1994	1995	1996
Under 3 ha	3.9	20.6	20.1	19.6	22.7
3.1 - 10 ha	19.5	48.9	48.2	48.1	47.6
10.1 - 20 ha	49.0	22.0	22.4	22.6	21.2
20.1 - 30 ha	17.6	5.7	6.0	6.2	5.6
over 30.1 ha	10.0	2.8	3.3	3.5	3.9
Total	100.0	100.0	100.0	100.0	100.0

Source: Ministry of Agriculture and Forestry

Land use reform brought about significant changes in contribution of different farm types to agricultural output (Table 5.5). With the increase of land being used by small-scale operations (family farms and household plots), their share in total agricultural output as well as in production of major agricultural products is constantly growing.

Table 5.5: Distribution of agricultural production by type of farm, 1990-1996, per cent

Type of farm	1990	1991	1992	1993	1994	1995	1996
	Plant production						
Agricultural companies*	65	40	30	30	24	20	18
Family and household farms	35	60	70	70	76	80	82
	Livestock production						
Agricultural companies*	70	62	43	42	50	44	33
Family and household farms	30	38	57	58	50	56	67
	Total production						
Agricultural companies*	68	52	36	36	36	31	25
Family and household farms	32	48	64	64	64	69	75

* including state farms and co-operatives

Source: Ministry of Agriculture and Forestry

It can be assumed that this fragmented farm structure may represent only a temporary phase in the land reform process, since many of these farms are not financially viable as separate units. In the longer term, the development of an effective land market and leasing system could resolve many of the current problems and will lead to substantial gains in operational efficiency and hence to increased competitiveness of Lithuanian agriculture.

5.1.4 Up- and Downstream sector

According to Porter (1990, S. 100ff.) an important determinant of the competitiveness of a certain sector is the existence of international competitive up- and downstream sectors. In the former Soviet Union especially the downstream sector was the weakest link in the whole food chain, receiving the least amount of investment resources. This in turn led to a poor quality of processed foodstuffs. Moreover both up- and downstream industries were characterised by monopolistic structures. This has not only negative impacts on agriculture in terms of unfavourable prices, but also eases the pressure for input suppliers and processors to restructuring.

The first steps in the privatisation process of up- and downstream industries were taken in 1991-1992. Yet, privatisation of corresponding enterprises proceeded rather slowly. It was mostly affected through the issues of shares, thereby special share preferences were given to managers and employees in the enterprises concerned (up to 30 % of the company's capital). However many of the enterprises were not attractive to investors as they were over-valued and many needed substantial capital investment to modernise outdated equipment and facilities.

Towards the end of 1992 the government sought to encourage vertical integration in the agro-food sector by introducing special concessions to agricultural producers who received services from upstream agro-service enterprises and supplied downstream processing plants. Up to 95 % of the value of shares is to be paid in investment vouchers and not less than 5 % in cash. This complicated method of payment was the main reason for a low rate of participation of 30 % by producers. Moreover the weak financial position of many of these enterprises and the lack of product markets contributed to this situation.

The second stage of privatisation in 1994, which offered shares to agricultural producers on very favourable terms at 2.5 % of their nominal value, helped speeding up privatisation. Over 90 % of all enterprises listed for privatisation were sold off.

Upstream industries

During the Soviet period Lithuania imported all agricultural machinery and equipment from Russia, Belarus, Latvia and the Ukraine. Some agricultural machinery was also supplied by the former Czechoslovakia and East Germany. In addition, there were about 10 light engineering enterprises in the country, which specialised in the production of spare parts, different kind of manure spreaders and feed processing equipment.

At present time there are 1274 agroservice enterprises, including agricultural enterprises and co-operatives. This includes state-owned companies, private firms, and companies with a mixed ownership structure. Whereas on the seed producers market private firms dominate, the supply of fertilisers is largely under the control of the Agrochimija, which has a monopoly over the distribution of fertilisers in Lithuania. Agricultural machinery and equipment are mainly imported by private producers and traders from the former Soviet Union, and are marked by private sector companies.

Downstream industries

Food processing industry

Prior to the reform, the food industry in Lithuania was highly concentrated and subsidised. Processing capacities reflected agricultural output levels, which were oriented to exports of meat and dairy products to other Soviet republics in exchange for feed cereal and energy. Products from farms were delivered directly to processing enterprises or their established livestock or milk collecting points. Each enterprise was assigned a definite input supply zone as well as product marketing zone. It means, that there was hardly any competition between them neither with respect to input supply nor demand for their products. As a result of privatisation, there are no longer input supply or product marketing zones assigned, and privatised former state owned food industry enterprises together with new private entries have to compete for both supplier and consumers.

The real value of output in the manufacture of food and beverages declined by more than 50 per cent between 1992 and 1994, then remained nearly constant in real terms (Table 5.6.).

Table 5.6: Main indicators of the development in food industry, 1992-1995

	1992	1993	1994	1995

	Value of industrial output, current prices, mill. Lt.			
Total industry		13035.1	13773.7	17871.1
Manufacture of food and beverages		3387.8	3460.6	4781.4
Manufacture of tobacco products		48.1	133.1	220.5
	Changes in industrial output (previous year = 100)			
Total industry.		65.6	73.4	105.3
Manufacture of food and beverages		76.6	79.6	94.7
Manufacture of tobacco products		36.7	117.7	145.1
	Share in total industrial output, per cent			
Manufacture of food and beverages	31.4	29.6	32.6	32.7
Manufacture of tobacco products	0.9	0.5	0.8	1.2
	Annual average number of employees, thous.			
Total industry	405.2	394.9	355.6	310.9
Manufacture of food and beverages	64.3	69.6	58.7	60.6
Manufacture of tobacco products	0.6	0.6	0.6	0.6
	Share in industrial employment, per cent			
Total industry	100.0	100.0	100.0	100.0
Manufacture of food and beverages	15.9	17.6	16.5	19.5
Manufacture of tobacco products	0.1	0.2	0.2	0.2

Source: Statistical Yearbook of Lithuania, 1994-95, 1996, Lithuanian Department of Statistics, Vilnius

During this period, the decline in agro-processing has been less than in the rest of industry, so the share of the food and beverage sector in total industrial production rose slightly from 22 % in 1992 to 27 % in 1996. One area of concern is that employment in the food and beverage industry declined only 11 per cent while output was cut by half, indicating a large decline in labor productivity. This disparity was also evident to a lessor degree in industry as a whole. Within this industry group, there is a wide dispersion in the impacts of the adjustment on particular products. Some products like fermented cheese, sugar, and alcoholic beverages declined less then 20 per cent from 1990 to 1996, while meat, soft drinks, and canned fruits and vegetables declined by 75 per cent or more.

Table 5.7: Dynamics of industrial output for major food commodities, 1990-1996

Product groups	Measure units	1990	1991	1992	1993	1994	1995	1996*	1996* in % of 1990
Meat (incl. I cat. Offal)	thous. mt	431.5	338.3	261.8	135.4	91.8	94.7	94.1	22
Sausage	thous. mt	76.2	70.2	57.7	48.2	39.8	41.6	48.4	64
Fish and fish products (excluding fish preserves)	thous. mt	201.6	199.7	113.2	72.2	38.9	7.4	8.0	4
Canned fruit & vegetables	mil tins	151.8	193.1	123.3	170.1	51.4	52.1	38.6	25
Vegetable oil	thous. mt	1.2	0.2	0.1	0.0	0.0	0.5	2.8	233
Whole milk products (converted to milk)	thous. mt	831	714	401	285	297	310	313	38
Butter	thous. mt	73.9	67.2	49.2	45.3	31.2	32.3	34.8	47
Fermented cheese	thous. mt	26.3	24.5	17.6	19.7	18.5	16.6	21.5	82
Flour	thous. mt	466.9	406.3	396.0	291.6	253.7	237.1	228.5	49
Bread and products	thous. mt	332.1	319.8	295.1	279.6	240.3	212.4		64**
Sugar	thous. mt	158.6	150.5	87.7	90.9	51.6	105.2	136.3	86
Confectionery	thous. mt	75.1	64.8	41.5	30.1	33.2	36.4	38.2	51
Alcohol beverages	thous. dal	2943	3547	2696	2400	2166	2581	2776	94
Beer	thous. dal	15017	14121	14258	11638	13529	10902	11079	74
Soft drinks	thous. dal	10461	8066	4842	2991	1325	1906	1627	16
Tobacco products	bil units	6.7	6.4	5.3	3.4	3.9	4.9	4.5	67

* preliminary data

** 1995 in % of 1990

Source: Statistical Yearbook of Lithuania, 1996, Lithuanian Department of Statistics, Vilnius

As table 5.7. shows most products began showing the first signs of recovery in 1995, while a few were still declining in 1996.

Privatisation and restructuring in the food industry

The privatisation of industry and distribution system was one of the major initial objectives of Lithuanian economic reform. This objective was almost fully realised by the end of 1996. The privatisation of agro-industry has been somewhat slower because of the special privatisation provisions.

The degree of privatisation differs from industry to industry and from enterprise to enterprise, but on the average, privatisation process is close to completion. According to the Ministry of Economics almost 90 % of all enterprises designated for privatisation have effectively been privatised. However, the food processing sector has proved harder to be privatised than other industries, and generally speaking smaller processing companies have been privatised more quickly than large ones. In particular, a high number of milk processing enterprises have been privatised, reflecting their higher level of profitability. In the grain sector, one grain elevator holds the strategic grain reserves for Lithuania and will continue in state ownership. Privatisation of the meat industry has proved more problematic and over 40 % of meat processing plants remain under state control (Table 5.8).

Table 5.8: Degree of privatisation in up- and downstream industries in 1994 and 1996

Type of enterprise	1994		1996	
	Number	assets privatised, %	Number	assets privatised, %
Agro-service	78	49.5	77	80.2
Land reclamation	46	51.9	45	82.9
Crop selection	9	56.2	9	99.1
Livestock breeding	12	17.5	13	79.9
Meat processing	14	53.5	14	56.2
Milk processing	39	59.7	40	78.9
Fruit and vegetable processing	6	97.4	7	99.7
Grain processing	22	55.2	21	91.1
Sugar refineries	4	0.0	4	0.0
Flax processing	4	53.6	4	50.1
TOTAL	234	53.6	234	68.5

Privatisation process through selling shares to agricultural output suppliers continued in 1997 (Table 5.9.) and some progress has been achieved in a number of industries where privatisation is close to completion.

Table 5.9: Degree of privatization in up- and downstream industries in April 1997

Type of Enterprise	Number	Statutory Capital, mill. Lt	Assets Privatised, %
Agro-service	77	85.6	90.2
Land reclamation	45	66.4	91.5
Crop selection	9	8.2	99.1
Livestock breeding	13	1.4	90.0
Meat processing	14	86.7	80.6
Milk processing	40	282.3	77.9
Fruit and vegetable processing	7	4.5	98.8
Grain processing	21	147.3	94.7
Sugar refineries	4	98.5	90.7
Flax processing	4	13.5	75.0
Total with farmer privatisation	234	794.4	85.7
Total Food and Beverage Manufacture	390	1603.6	63.1

Source: Department of Statistics

At a general level the privatisation of the food industries ran into a number of problems. Firstly, the large decline in agricultural production has resulted in severe overcapacity in the downstream sector, especially in meat processing with a capacity utilisation rate of less than 35 %. Thus substantial restructuring is still necessary. Secondly, many of the industries continue to exercise monopoly power, which tends to mask a high level of inefficiency. The privatisation policy, which encourages vertical integration in order to dilute monopolistic power did not bring the desired results. In fact, the policy of giving preference to farmers could create additional problems. It carries the risk of bringing about even greater concentration of the industry and putting more market power in hands of the new integrated industries, resulting in higher prices to consumers. Moreover, this policy may also have contributed to the less amount of foreign investment in the sector, which could have provided the necessary capital for the downstream sector to modernise, which is crucial for improving efficiency and competitiveness. Furthermore, many of these integrated structures do not have the management expertise or marketing knowledge necessary for the development of an internationally downstream sector.

Wholesale and retail sector

In Soviet times food product marketing was organised either through the network of wholesale distribution enterprises or directly to retail outlets based on predetermined quantities and prices.

Wholesale and retail trading has been privatised at early stages of the reforms, the degree of privatisation being over 90 %. The turnover of goods in retail markets has been increasing considerably. In 1993 the total turnover of retail goods consisted 3604.6 mill. Lt and in 1996 12039.1 mill. Lt. The number of shops increased form 11.1 thousand to 19.4 thousand in 1996.

Sales space almost doubled and in 1996 made up 1523.0 thousand sq.m. The share of food commodities made up 54 per cent of the total turnover of domestic trade. There has been some concentration of operation in retail sector in Lithuania, where new chain of shops emerged. The largest store network are: "IKI", "Pas Juozapa", "ECO", "Vilniaus prekyba", "Naktigone", etc.

However additional wholesale markets and commodity exchanges for farm products are still only in the process of being developed.

5.1.4 Demand

The economic and agrarian reforms in Lithuania has led to significant changes in food consumption patterns. The loss of a substantial consumer subsidies accompanied by the simultaneous decline in real consumer income had a dramatic impact on consumption. This resulted in a large increase in the share of household expenditure on food which increased from 34 % in 1990 to over 60 % in 1993. In the recent years this share has a tendency to decline slowly, and was still high at 56.6 % in 1996. As a result, the domestic demand for major food products is weak. This is especially true with dairy and meat products. Prior to the reform the supply and consumption of meat and milk products was particularly high, due to huge state subsidies both to producers and consumers. As a result of price liberalisation together with the sharp fall in the output of livestock products, consumer prices rose sharply and consumption dropped. Between 1990 and 1996 per capita consumption of meat, dairy products, eggs, fish and sugar fell by 45 to 50 %. On the other hand, consumption of grain-based products such as bread increased by around 30 %. (Table 5.10).

In general, per capita consumption of the relatively more expensive livestock products has declined while the intake of fruits and vegetables and grain products have increased. These changes in the food consumption pattern reflect shifts in relative food prices, which had previously been distorted by huge consumer subsidies, as well as larger income disparities and changes in consumer preferences due to greater availability of a wider range of products. The latter is also because of the increase in volumes of imports of competing products with better quality.

Table 5.10: Food expenditure and annual per capita consumption

Indicators	1990	1991	1992	1993	1994	1995	1996
Average share of household income spent on food, %	33.9	38.3	59.7	61.5	57.3	57.4	56.6
	Per capita consumption, kg						
Meat	88.9	65.5	64.1	55.7	49.6	52.0	51.0
Milk (in milk equivalent units)	480	315	334	319	291	238	213
Eggs, units	305	293	207	143	167	172	167
Vegetable oils	7.3	3.0	3.8	7.4	10.4	11.5	12.8
Sugar	43.0	31.0	23.1	25.1	22.7	22.0	23.5
Bread and grain prod. (in	108	138	142	122	135	136	142

grain equivalent unit)							
Potatoes	146	128	95	122	99	127	133

5.1.5. Agricultural and Food Policy

Institutional Infrastructure

The creation of an efficient agri-food sector based on market principles requires a new institutional structure for the design and implementation of agricultural and food policies. State institutions should not interfere with the direct management of the production process; but should be aimed at establishing an economic environment that supports the development of efficiency in agricultural production on the basis of market competition. A price and market information system that creates market transparency and functioning credit markets providing the necessary funds for restructuring are two major pillars of a new institutional infrastructure that can promote competitiveness in the agri-food sector. Lithuania has started the institutional reforms in the framework of its integration to the European Union. With further liberalization of agricultural policies and reorientation towards integrated rural development carried out through Rural Support Fund, decentralization of decision making and policy implementation is taking place. Together with this process, the role of the state and its intervention into the system as well as assistance in providing public goods has to be redesigned. More and more the influence should be achieved through the facilitation of the reforms and the creation of sound and competitive environment for existing structures to develop and new market structures to evolve.

Price and Market Information System

There is a great lack of market information on all levels: farm, wholesale, retail, and export/import. Occasional price information is published in newspapers; however, there is no system of regular market information collection, analysis, publishing and dissemination for agricultural and food products. The newly established Lithuanian Agricultural Foreign Trade Agency was supposed to partially close the information gap by collecting and analysing price levels in foreign markets. However, it did not satisfy the needs of agricultural producers and processors operating in the domestic market. For this reason, the above mentioned agency is undergoing structural changes, giving up commercial mediation and foreign trade functions to a new Agricultural market regulation Agency, and from now on is supposed to be solely devoted to market research, analysis and export promotion activities. This agency together with the Lithuanian Agricultural Advisory Service will collect and disseminate domestic market price information on a regular basis, as well as collaborate with similar Latvian agency in exchanging market information and preparing joint publications with the purpose of establishing the Baltic market information system in the future.

Credit market

In the system of centrally planned economy credit did not play a real economic role for producers. Short and long term credits were available at extremely low, government subsidized interest rates according to distribution schedules, very much like the other resources. In many cases, credits were not repaid and were simply a transfer of resources. Funds were usually distributed to agriculture and related agro-food industries by the State Agricultural Bank.

As an economic factor, credit gained significance only after transition started, when agriculture became one of the sectors with instantly growing demand for credits. However, credits became more and more unavailable to newly emerging agricultural producers. With the unstable financial situation in the agri-food sector (only about 50 % of companies make profit), advancing credits to farmers and food processors became quite risky. Moreover the return on investment in the agri-food sector remained below the interest rates earned on commercial bank deposits.

Most private commercial banks do not lend to private farmers and to small and medium-sized agricultural businesses, since it requires careful risk assessment and knowledge and experience working with small borrowers. However, some of these banks provide loans to the food processing sector. So in practice, the Agricultural Bank is the only bank that provides loans to farmers and agricultural companies. In addition, Vilnius Bank, Hermis Bank and Savings Bank also extend credits to the agri-food sector.

In order to provide more favourable loans to the agro-food sector, Lithuania has made many attempts to establish credit unions, which traditionally were very popular in the country. During the inter-war period they were a major source of finance for farming and small business in rural areas. The Law on Credit Unions, which was passed on 21 February 1995 establishes the framework for the activities of credit unions. The basic requirements for credit unions are that they must have at least 50 members and that their share capital should exceed 15 000 litas. By the end of 1997 more than dozen credit unions had been established in different regions.

Poor access to credit lines is also complicated by the lack of collateral of newly established farms or farms still in the process of establishment. Since Lithuania's legal system doesn't provide the possibility for legal entities (including banks) to own agricultural land, farmers have little if any to mortgage. To resolve the problem and to make credit resources cheaper and more accessible, the Partial Loan Guarantee Fund has been established in mid-December 1997. The Government has allocated 20 mill. Lt from the 1997 agricultural budget and additional 45 mill. Lt from the 1998 budget. Guarantee generally is provided for up to 70 per cent of the bankable project value, except for the purchases of specialised farm machinery, for which guarantee of up to 100 per cent can be extended. The EU PHARE programme supports this activity by providing 2 mil ECU in training, constancy and equipment.

Price and Income Policies

In 1991 and 1992, Lithuania abolished most of the regulations and controls that existed in the Soviet Period. This resulted in input prices increasing rapidly toward world market prices, while output prices also increased, although at a slower rate. In 1995-1996, however, there was some reversal of this policy with the introduction of minimum farm gate prices and intervention purchases for specified quantities of the main agricultural products.

In late 1994, the Council for the Regulation and Co-ordination of the Purchase of Agricultural Products announced recommended prices for rye, barley and wheat purchased under quota arrangements. On 22 December 1994, the Seimas adopted the Law on the State Regulation of Economic Relations in Agriculture, whose objectives were: to regulate economic relations between agricultural entities, state institutions and agricultural market partners; to establish the basic state regulatory measures of these relations; to facilitate the implementation of agrarian policies, and to maintain a balance on the domestic market. In addition, this law provided for "soft credits" to be made available to the agricultural sector.

Under the provisions of this law, minimum (marginal) purchase prices (MMPP), purchase quotas, price subsidies, direct payments for less favoured areas, export subsidies, and subsidies for storage were introduced in 1995 for the main agricultural products. The MMPP were set so as to provide a "floor price" for producers in much the same way as the EU's intervention system. However, in Lithuania the government had no institutional mechanisms for enforcing minimum purchase prices and totally relied on competition among processors to ensure that producers receive these minimum prices. The subsidies are then paid directly through the processing industries in order to keep consumer prices lower and farm income higher, than they would be otherwise. Thus, processing enterprises serve as a channel to transfer government budget money to agricultural producers in the absence of alternative mechanisms.

The design and implementation of this programme based on minimum purchase prices distorts the price signals from the market and thus leads to allocation of scarce resources in the economy. In 1997 the Government has implemented major reforms in market regulation and price support programmes by revoking previously announced farm price increased and reducing the list of commodities subject to MMPP and subsidies. Besides that, price support system has been reorganised to become more targeted towards higher quality agricultural output.

Tax concessions provide a significant indirect support to agriculture. In Lithuania these contain exemption from land tax (regular rate has been established at 1.5 % of land value; tax exemptions extended to farmers during first three years of their operation), land lease tax, reduced rates and/or tax concessions on personal income and corporate profit tax. Farmers and agricultural companies involved in primary farming also enjoy reduced road tax rates as well as reduced tariffs for electricity and natural gas.

Structural, Environmental and Social Policies

Structural Policy

Structural policy related to the agro-food sector consists mainly of infrastructure and rural development policy. Infrastructural policy measures are aimed at improving agricultural education and research and at providing agricultural advisory services. The policy on rural development has been first formulated in 1997 while designing Rural Support Fund measures. It is aimed at developing rural infrastructures, diversification of economic activities on poor quality and environmentally sensitive soils thus creating new jobs and providing off-farm employment in rural areas. Policies are transparent, demand-driven and implemented on a district level according to the priorities and procedures spelled out in the Rural Support Fund publicly available document. The main purpose of the decentralisation of the implementation of rural and structural policies is to accommodate needs of specific rural areas and generate local community initiative thus getting ready to implement the EU structural policies and pre-accession measures.

Environmental Policy

In the Soviet period, little attention was paid to environmental issues. In recent years, new environmental policies have been adopted in Lithuania, designed to ensure more effective protection of the environment. These measures are being implemented both through regulatory and economic instruments, such as the polluter paying principle and environmental impact assessment procedures. Furthermore, pilot projects, designed and implemented in environmentally sensitive Karst region and aimed at generating farmers awareness and implementing environmentally friendly practices switching to sustainable and bio-organic

farming have been extended to the rest of the territory in 1997. The system of farm and product certification has been established.

Social Policy

In 1992 a new system of social protection was introduced. The broad based social safety net provides protection to most groups in the population through pensions, family allowances, health care and unemployment compensation. There is no special social policy to the agro-food sector. However, farmers enjoy reduced rate of financial contribution to social insurance and health insurance funds.

Social insurance benefits are financed by payroll taxes as well as individual contributions of self-employed and are administered by the Social Insurance Fund, while other welfare benefits are financed from general budgetary sources.

Policy Restrictions due to Trade Agreements

In the 1970s and 1980s, Lithuania was a net exporter of agricultural products and foodstuffs, mainly to other FSU republics. Lithuania traditionally was a significant exporter of dairy and meat products, while it was a net importer of grain as well as fruits and vegetables. The positive balance of agricultural trade has been continuously eroding since 1993, and by 1996, Lithuania had become a small net importer. From 1995 to 1996, the balance of trade improved with Estonia and the CIS, but deteriorated by $101.6 million for the EU and $112.7 million for all of Europe (Table 5.11). In 1996 food and agriculture contributed 17.1 % to overall exports, while its share of imports amounted to 13.1 %. Both imports and exports include a substantial quantity of goods for re-export from East to West and West to East. The main domestic products exported to western markets are primary products designated for further processing or re-export. In eastern markets Lithuania still sells mainly meat and dairy products.

Europe and the CIS were the destinations for 98 % of Lithuanian exports from 1993 to 1995 and 93 % in 1996. In the last two years, there has been an increase in the share of exports going to the CIS and a decline in the share going to Europe. The European Union share declined from 27 %, where it had been for three years, to 17 % in 1996. These shifts are related to numerous factors like quality and marketing infrastructure but they are also consistent with the appreciation of the Litas relative to European currencies and the depreciation relative to CIS currencies. The share of exports going to Estonia and Latvia increased slightly, which is an encouraging sign for future possibilities under the Baltic Free Trade Agreement (BFTA). The principal source of imports the last three years has been Europe, and the share from this region increased from 53 % in 1993 to around 70 % in 1996. The second important source has been the CIS, but this share has declined from 39 % in 1993 to around 21 % in the last three years. A close third and gaining in import share are the other central and eastern European countries, which are now close to 11 %.

Table 5.11: Regional pattern of agricultural and food exports and imports, 1995-1996, thousand US$

1996		Exports	Imports	Trade Balance		
-199,407		1995	1996	1995	1996	1995
-129,529	Europe	198,206	180,409	313,059	379,816	-114,852
-31,423	EU	136,415	96,896	204,139	226,425	-67,724

14,540	EFTA	6,867	17,214	25,481	48,637	-18,613
26,231	Estonia	15,950	25,316	7,450	10,776	8,500
-76,601	Latvia	23,850	32,609	4,400	6,378	19,450
-2,626	CEEC, Malta and Cyprus	15,040	7,921	68,656	84,521	-53,616
224,386	Turkey	84	453	2,932	3,079	-2,848
-19,310	CIS	289,961	346,477	103,662	122,091	186,299
-27,232	USA	2,686	4,372	13,118	23,683	-10,432
-21,562	Other	4,826	24,132	57,740	51,364	-52,914
-1,124,838	Total	495,679	555,390	487,578	576,954	8,101
	All Products	2,705,016	3,279,706	3,648,470	4,404,544	-943,453

Source: Department of Statistics

In December 1995 Lithuania applied for EU membership. During 1994-1995 there were some attempts to align policies with those currently in operation in the EU. However, budgetary constraints make this option unlikely. Moreover, current levels of support for many products in the EU are likely to be reduced in the near future. The 1992 CAP reforms, which reduced support prices and introduced direct payments for some products, have reduced the gap between EU and world prices and created a more market-oriented and less distorted environment for some products. Further reform would appear to be directed at rural development and regional policies, which would facilitate further market development and possible enlargement of the Community. At this juncture, the best strategy for Lithuania would probably be to continue reducing economic distortions and improve the efficiency of the agro-food sector in general and downstream activities in particular, in order to develop an intentionally competitive food industry.

Implications on domestic agricultural policy also arise from Lithuania's membership negotiations in WTO. Although some major steps have already been undertaken to bring the country's foreign trade regulations into line with WTO requirements, such as the liberalisation of exports, the removal of quantitative restrictions, the conversion of non-tariff barriers into tariffs, the adoption of legislation on competition and monopoly practices, and the introduction of antidumping measures, there are many outstanding issues to be resolved.

Finally, the Baltic Free Trade Agreement will force Lithuania and the other Baltic States to bring their agricultural policies in line with each other. Due to the liberal policy in Estonia prices are somewhat lower there than in Latvia and Lithuania (Table 5.12). Under the Free Trade Agreement it can be assumed, that in the present situation potential foreign investors would rather go to Estonia, because they can buy cheap agricultural raw products and sell the processed food products to Lithuania. This in turn would force Lithuania to further liberalize its agricultural policy in order to attract foreign investors. In the nearest future the already signed Baltic free trade agreement on agricultural goods will be even more important for the Baltic states than trade with third countries. Under this agreement all three Baltic states have already abolished import and export duties and quotas on all farm and fishery products of Baltic origin. In that case all three countries are more or less in the same position. This agreement will improve the general

performance of all three countries together due to better trade conditions for both raw materials and processed goods, but gains for each separate country could be different.

Table 5.12: Comparison of farm and retail prices in Baltic states

Products	Farm Price		Retail Price		
	Average in $/ton 1996	Per cent of Highest 1996	Average in $/kg Feb -Jun 97	Per cent of Highest Feb-Jun 97	Jul-Dec 96
	Cattle (l.w.)		Beef		
Estonia	717	92.0	2.36	88.4	92.3
Latvia	779	100.0	2.67	100.0	100.0
Lithuania	697	89.4	2.60	97.5	99.4
	Pigs (l.w.)		Pork		
Estonia	1180	90.4	3.12	93.6	89.4
Latvia	1305	99.9	2.95	88.6	89.3
Lithuania	1306	100.0	3.35	100.0	100.0
	Broilers (l. w.)		Chicken		
Estonia	1467	100.0	2.41	90.2	100.0
Latvia	1301	99.3	2.61	98.0	86.4
Lithuania	1292	90.9	2.67	100.0	82.6
	Milk		Milk		
Estonia	214	100.0	0.41	87.4	100.0
Latvia	181	84.7	0.46	98.5	99.5
Lithuania	139	65.2	0.47	100.0	97.0
	Wheat		Bread		
Estonia	174	89.6	1.00	100.0	100.0
Latvia	172	89.0	0.94	94.1	88.8
Lithuania	194	100.0	0.77	76.3	65.8
	Sugar beets		Sugar		
Estonia	*	*	0.58	68.1	75.4
Latvia	40	84.1	0.83	97.5	96.3
Lithuania	47	100.0	0.85	100.0	100.0

* not produced on a commercial basis

Source: Ministry of Agriculture and Forestry

5.2 Future Development of Determinants of Competitiveness

5.2.1.Factor Conditions

Talking about future development in the competitiveness of the Lithuanian agriculture and food industry it is important to keep in mind current and future trends in main factor development.

5.2.1.1 Land

Main factors, contributing to future developments in land market development could be formulated as following:

- **Development of legal basis of land reform**

Main amendments to Land Law and Land Reform Law have been adopted by the Parliament in the fall of 1997 aiming at resolving arising problems in the land ownership restitution process as well as speeding up settlement of claims for farm land and compensations. However, efficient implementation of the amendments require well defined and clearly formulated implementation procedures. This still has to be worked out incorporating new provisions as reform progresses and new challenges appear on its way.

- **Elimination of impediments in the formation and efficient operation of land market**

  According to current legislation (including Constitutional provisions) farm land can be owned by private individual possessing the Lithuanian citizenship and the state. However, over 20 per cent of farm land is still operated by restructured and privatised agricultural companies. Being legal entities they can not own land and thus are not secure from the point of view of the possibilities to conduct farm operations on currently used land and potentials for the expansion of their operations. Resolution of this issue removing the impediment of land ownership by legal entities would resolve multiple problems related to the formation and operation of land market. First of all, it would enable economically sound agricultural companies plan their future activities, rationalise their operations, invest in new machinery and technology thus contributing to the establishment of modern competitive specialised farm operations benefiting from the economy of scale. Second, it would speed up the process of farm land consolidation, since agricultural companies could purchase currently used state or private land. Third, it would ease the problem of the lack of collateral applying for farm credit, since at present banks as legal entities can not own farm land and are not willing to accept farm land as collateral thus limiting farmers' access to credit.

- **Farm support and rural development policies**

  Land use and land market development in the future are going to depend heavily on the type of farm support policies in the country. If present re-orientation from price support towards income support and rural development continues, it will inevitably support consolidation of farm land and growth in farm operations. It means that small holdings not able to compete either will have to either sell or lease their land or to enlarge their own operation through land purchase or rent or specialising in special crops. Such developments in farm support policies would speed up land market development and increase number of land transfers. As a result of changes in farm policies, it is likely that less favourable areas with low productivity soils currently used for traditional farming will be more used for non-traditional activities, recreation, aforestation, etc.

On the other hand, current high level of rural population dependency on farm employment is to a great degree conditioned by a limited availability of alternative employment in rural areas. With growing importance of rural versus agricultural dimensions in government support policies, creation of additional jobs outside primary agriculture, farming will lose its importance as a sole source of rural family income and will provide additional chances for out of farm employment for women and younger generation. This will also have some effect on land availability and demand and the operation of the land market.

- **Policies towards subsidiary plots**

  A significant part of farm land is currently used by so called personal or subsidiary plots, providing additional income to rural population. This type of small-scale farm operations has been inherited from the Soviet period, and currently presents type of farming which has exhausted its own potential. For further growth in agricultural output which is crucial to secure decent income for farming family, these farms have to grow in size of their operation. At present they were allowed to privatise the land they use (2-3 ha) thus providing them possibility to enter the land market. Keeping in mind the way this type of farmers has developed (as additional source of income for state and collective farm employees) as well as the fact that majority of the farmers in this group are already retired or are close to the retirement age, it is clear that after some time majority of problems related with this farming group are going to be resolved by social means. This would contribute to increased number of land transactions and consolidation of land plots.

- **Farm registration and ownership titling**

  All factors described above will have positive impact on land market development and farm operation concentration only if land ownership titles are issued and farms are registered. Land titling is a long and complicated process due to the model of land privatisation process based on the restitution of property rights to former owners and their legal heirs. The number of claims to be processed is large (including subsidiary plots - over 600 thousand), allocation of land is complicated by variation in land demand and supply in different regions as well as surveying work to be undertaken in order to issue titles. To speed up the process, a special Land reform and legal issues Department has been set up by the Ministry of Agriculture and Forestry in late 1997 to deal with all legal and practical aspects of carrying out land reform. Farm land registration and mapping is carried out by the Land and Real Estate Register, which is solely responsible for the cadastrial work and registration of farm property.

It is expected, that in the next three to five years the initial land reform will be completed giving solid basis for the sound operation of the land market, consolidation of land and farm operations. The average commercial farm size is likely to be over 35 - 50 hectares. Currently used marginal productivity soils are likely to be utilised under special crops, forestation and alternative non-agricultural activities. In order to assist in purchase of land better access to farm credit through the establishment of rural credit guarantee fund as well as government support programmes for farm establishment and land purchase have been established and are under implementation since 1997.

The limited land market, low purchasing power of farm operations as well as low land demand in some regions do not provide possibility for the establishment of market land price. Majority of land transactions are not registrated and it is hard to establish land price through lease arrangements either.

5.2.1.2. Labour

During the period from 1993 to 1996 the share of agriculture, forestry and hunting in total employment has increased for 19.5 per cent to 24.1 (Table 5.13). Such an increase can be attributed to several economic and non-economic factors. First of all, the restitutional nature of land reform. Second, limited employment possibilities in rural areas outside primary farming. Third, rising unemployment in the cities, turning rural areas into a social buffer for the time being, and finally - lack of the categorisation of farms based on employment and/or share of income coming from agricultural sector.

Table 5.13: Dynamics of employment in agricultural and food industry

	Measure units	1992	1993	1994	1995	1996
Agriculture, forestry, hunting	thous.	362.3	399.3	390.1	390.0	399.1
Agricultural companies	thous.	212.6	168.7	157.6	104.7	86.0
Private farmers	thous.	134.7	210.3	212.4	265.7	297.3
Share in total employment	per cent	19.5	22.4	23.3	23.7	24.1
Food industry	thous.	64.3	69.6	58.7	60.6	57.4
Share in industry employment	per cent	15.9	17.6	16.5	19.5	19.6
Agri-food share in total employment	per cent	23.0	26.4	26.8	27.4	27.5

On the farm labour side, it is reasonable to expect a sharp decline in farm employment with decline in full-time farm labour and increase in part-time farm employment. This is going to be accompanied by decline of farm labour in agricultural companies since they do not sustain the market pressure and many of them go bankrupt. Rural development policies in a longer run will result in increase of jobs in agri-service sector as well as other spheres of rural economy thus naturally contributing to farm employment decline.

With completion of food industry privatisation and restructuring the excessive labour will move out giving way to the improvement in firm efficiency and productivity.

The major task and challenge for the government and public institutions is to provide agri-food sector with information, ensure training and extension to farmers as well as access to improved technology , development of better marketing and management techniques and skills. Agricultural budget has regular targeted allocation of funds for the development of information system, farm advisory service, research, training and agricultural professional education (Table 5.14.).

Table 5.14: Allocation of government budget funds for human resource development, thous. Lt

	1994	1995	1996	1997
Agricultural research and advisory service	4100	8200	12180	23000

Training is provided by agricultural schools and colleges as well as agricultural university. Advisory service covers all the territory of the country with 44 regional offices. Research is carried out by five major agricultural research institutes and agricultural universities. Agri-business training centre carries out training programmes both for farming and processing representatives. Information system is in the process of implementation.

5.2.1.3. Capital

Agricultural sector is financed by several sources: commercial credit, World Bank loan to agriculture and food industry (30 mill. USD) and from the Government budget. Government financial participation is carried out in three main directions: subsidies to breeding system development, acquisition of high quality seed and breeding stock; Government participation in the priority investment projects and through Rural Credit Guarantee Fund. All these mentioned programmes together with market regulation and support to research, training and advisory services form Rural Support Fund set up in 1997.

In 1997 and 1998 Rural support Fund had allocations of around 100 mil USD for the implementation of the above mentioned programmes. Implementation of the investment programmes is decentralized and carried out by the county agricultural offices following the priorities and guidelines formulated by the national agricultural authorities. Programmes are transparent and are accessible to all registered farmers upon submission of the bankable business plan to county agricultural competition boards for public competition. Based on the results, government co-finances on the average 25 per cent of the value of the business plan. Activities supported include: development of farm infrastructure (roads, electricity, water supply, telephonisation), establishment of farms, young farmers' programme, support to acquisition of farm machinery and modern technology, high quality breeding stock, establishment of agri-

services and marketing cooperatives, quality control system, etc. Rural Support Fund also contributes to the establishment and operation of the Rural Credit Guarantee Fund which intends to solve the problem of the lack of collateral and to lower the interest rate on farm loans thus making them more accessible and less expensive.

Government funds are also allocated for land reclamation and maintenance of the existing drainage system, acid soil liming.

First signs of the improvement in farm credit access and increasing banks interest to lend to farming sector as a result of stable policies and recovery in farm output already provide encouragement. With the development of the land market, farm and asset registration system, futures markets, farmers will be able to obtain necessary credit resources for farm improvement and modernisation.

On the up and down stream industry side, after privatisation is completed and overcapacity of food industry is overcome, it is likely that inflow of domestic and foreign DI will grow.

5.2.2. Firm Structure

Since land reform is still in progress and it is likely to take additionally three to five years for all claims to be settled and the efficient land market to operate efficiently, main farming structures are likely to co-exist as a transitional arrangement. However, the process of family farm establishment will speed up and will result in growth of importance of this farming group in both farm land use and agricultural output share.

The general tendency in the evolution of farm structures, the increasing number of family farms and consolidation of farm operations through land market transactions, further liquidation of non-viable agricultural companies and decreasing importance of household plots as additional income source, family farms are going to dominate.

Agricultural companies will have to undergo further reforms and restructuring in order to survive and be able to sustain growing competition from more flexible and market oriented family farms.

In general, further development in firm structure is likely to proceed in the direction of the establishment of specialised modern farms corresponding to the requirements of improved efficiency and environmentally friendly practices.

Special importance has to be given to the development of the efficient marketing and servicing infrastructure.

5.2.3. Downstream Sector

With the formation of production and consumption markets, rationalisation of the location of the food industry enterprises through bankruptcies of some of the outdated inefficient enterprises and establishment of the new private entries. The main policy priorities in this sphere should be targeted towards the improvement of efficiency, quality and competitiveness of the food processing enterprises, agri-service and marketing chain entities, establishment of the wholesale and retail outlets.

At present farm to ex-plant price spread is high due to lack of investment in modernisation of production facilities, under utilisation of capacities, poor management and marketing practices. In order to stay in business and be competitive, processing enterprises have to undertake a strong

effort toward rationalisation of their raw material supply, labour and energy use, develop marketing schemes for products produced within the country as well as aggressively search for external outlets for their products.

Much has to be done for production of quality inputs for processing and quality preservation throughout the marketing chain.

Privatisation of the remaining government shares in up and down-stream industries would speed up process of the establishment of the rational agri-food industry structure.

Dairy industry seems to have a good potential due to favourable natural conditions, traditional skills and considerable progress achieved in quality and efficiency improvement. This has already been recognised by the EU Commission by issuing veterinary registration numbers to eleven Lithuanian dairy plants enabling them to export to the EU market. Bigger changes are necessary in meat processing sector, as well as grain processing enterprises.

Quality improvement throughout the marketing chain is crucial for the sustaining of growing competitive pressure after the integration to the EU single market. Management as well as decision making and market analysis skills have to be improved essentially in order to provide possibility of firms to improve their operation and financial results. Foreign direct investment is crucial to bring changes in technology, marketing, management, etc. Reorientation towards production of more value added products is expected.

5.2.4. Demand

With the recovery of the declining consumer income and purchasing power, it is likely to expect some increase in per capita food consumption. However, it would be wrong to talk about growth in consumption across all income groups. Somewhat essential consumption growth is expected in the lowest income group currently comprised of retired people and young families raising children (depending on one adult income mainly). For this group of population there is going to be not simple increase in per capita consumption of food products, but also a change in food consumption structure switching from potatoes and grain products (which were growing during last years) to more valuable milk and meat products, fruit and vegetables as well as more value added products. However, for the rest of the population increase in per capita consumption is rather limited: food products have to compete with non-food products and services as well as savings in the structure of family income and expenditure. Foreign trade liberalisation and abolition of import tariffs as a result of the integration into EU single market will also cause big inflow of EU produced food products to Lithuania thus limiting the demand for the Lithuanian produced food products.

Together with demand changes from the quantitative point of view, there have been and there are still expected to take place changes from the point of view of quality and variety of food products.

Stronger growth in consumer food demand is also limited by the fact, that such items of household expenditure as luxury goods, communications, relaxation, education, transport, and others together with increasing importance of family savings are competing with expenditure on food products. Broader availability of non-food products and services and already high share of food in family budget expenditure does not provide too much scope for the increase in food demand.

In general, it is not reasonable to expect consumption recovery to the pre-reform, i.e. pre-1989 levels.

5.2.5. Government Policy

With limited financial resources from the state budget, as well as the national policy orientation towards rural development accompanied lower market support, the efficient use of funds is becoming crucial. Further policy developments will closely follow CAP reforms and EU agricultural policy orientation towards integrated rural development, improvement of product quality, strengthening domestic and international competitiveness of the agricultural and food industries. The role of the government is to facilitate proper functioning of land and product markets, create sound legal and macro-economic environment. For the implementation of the above mentioned policies government has to formulate clear and transparent medium to long-term agricultural and rural support policies based on efficient and rational use of limited financial resources and aiming at mobilising of more private funds for the financing of the agri-food sector. Priority has to be given to rural support measures and quality improvement throughout the marketing chain. Policy design and implementation to a great degree are restricted by the international obligations as well as availability of structures to implement them.

5.3. Discussion of Quantitative Analysis

5.3.1. Profitability Indexes

- NO RESULTS PROVIDED -

5.3.2. Market Share Indicators

5.3.2.1 Revealed Comparative Advantage of Lithuania in Agricultural and Food Products

The discussion in section 3.3.2.1 has revealed that RXAs, RMPs and RTAs are relevant indicators to measure competitiveness based on trade data. As for Estonia and Latvia those three indicators have been also analysed for Lithuania for 39 agricultural raw and processed products/product groups. Again all merchandise trade has been chosen as a reference group. Table 5.15 summarises the results for 1995, the year for which data seemed to be most reliable (see also section 3.3.2.2). For the purpose of comparison Table 5.15 also reveals the RXA, RMP and RTA values for the EU. The discussion in this section concentrates on the RTA, since this indicator implicitly covers the other two already (see section 3.3.2.1).

The RTA values, taking first all commodities as a reference group, show a quite heterogeneous but not unexpected picture. High positive RTA values can be especially observed from Table 5.15 for milk and all milk products. A high degree of competitiveness seems to exist especially for dry milk and butter for which the RTA values amount to 22 and 18. In this product group the EU reveals as well a competitive advantage. As for the other Baltic countries this result can be explained for Lithuania with the favourable natural conditions and the high percentage of pasture land in total agricultural land. In the EU it is mainly the outcome of the high protection for this product. Beef and veal production in Lithuania is mainly a side-product of milk production. For this products positive RTA values were calculated. The revealed trade advantage have been less

pronounced for all other animal products; an exception is sausages and prepared meat. There is no clear pattern with respect to a higher competitive advantage for livestock versus processed meat products. While the indicator is higher for beef and veal versus bovine cattle the opposite holds when comparing pigmeat versus pigs. The EU reveals as well positive RTA values for most livestock, meat and meat products. In the case of the EU the only exception is sheep and goats as well as the meat of these products.

Table 5.15:

Measuring Competitiveness in Lithuania and the EU-15 based on the Revealed Relative Export (RXA), Import (RMP) and Trade Advantage Index (RTA) in 1995

Reference Product Group: All Merchandise Trade

Product or Product Group	Lithuania			European Union		
	RXA	RMP	RTA	RXA	RMP	RTA
Bovine cattle	0.64	0.05	0.60	1.7	1.1	0.6
Sheep & goats	0.00	0.00	0.00	0.3	0.5	-0.2
Pigs	0.47	0.05	0.42	2.6	2.3	0.2
Beef & veal	1.65	0.04	1.61	1.5	1.3	0.1
Mutton & goat	0.00	0.00	0.00	0.8	2.8	-2.0
Pigmeat	0.18	0.31	-0.13	2.9	1.5	1.4
Poultry meat	1.19	0.39	0.80	1.1	0.9	0.2
Bacon & ham	0.04	0.00	0.04	13.2	10.3	2.9
Sausages	3.93	0.12	3.82	2.1	1.6	0.5
Meat, prepared	2.06	0.20	1.86	3.9	1.7	2.2
Milk, fresh	1.08	0.00	1.08	19.4	9.9	9.4
Milk, dry	22.55	0.21	22.34	2.6	0.9	1.7
Butter	18.28	0.04	18.24	4.9	3.5	1.5
Cheese	4.39	0.06	4.34	7.7	3.9	3.8
Eggs in shell	4.67	0.65	4.02	2.8	1.6	1.1
Wheat	0.04	0.50	-0.46	0.6	0.4	0.2

Wheat flour	2.14	2.06	0.08	2.0	0.2	1.8
Barley	1.15	3.38	-2.23	2.2	0.9	1.2
Rye	3.40	1.55	1.85	10.3	0.7	9.6
Potatoes	0.43	0.18	0.25	3.7	3.5	0.2
Soybeans	0.00	0.00	0.00	0.0	1.5	-1.5
Sunflower seed	3.05	2.82	0.23	0.7	4.3	-3.6
Rape/mustardseed	4.33	1.69	2.64	0.5	1.4	-0.8
Tomatoes	0.16	0.40	-0.24	2.7	2.7	0.0
Onions	0.40	2.39	-1.99	0.8	0.9	-0.1
Apples	1.37	0.44	0.93	1.4	1.8	-0.4
Grapes	0.12	0.66	-0.54	1.2	1.5	-0.3
Wine	0.09	1.55	-1.45	8.7	2.5	6.2
Beer	0.01	1.67	-1.65	2.5	0.8	1.7
Sugar, total	0.20	1.73	-1.54	0.7	0.4	0.2
Soybean oil	0.04	0.06	-0.02	0.4	0.1	0.2
Sunflowerseed oil	3.88	1.51	2.37	0.6	0.4	0.2
Rape/mustard oil	5.38	1.98	3.41	2.8	0.6	2.2
Chocolate	8.69	0.49	8.20	5.0	2.1	2.9
Soybean cakes	0.03	3.05	-3.02	0.3	1.7	-1.4
Sunflower cakes	0.12	3.46	-3.35	0.6	5.9	-5.3
Rapeseed cakes	0.00	0.03	-0.03	0.9	1.7	-0.8
Margarine	19.55	6.70	12.85	2.6	0.7	1.9
Other Agr. Prod.	0.94	0.84	0.11	0.5	0.7	-0.3
Non Agr. Prod.	0.54	1.25	-0.71	1.2	1.1	0.2

Source: Own calculation based on data from FAOSTAT

With respect to grains the result is rather mixed. The RTA values are negative for wheat and barley and positive for rye. Wheat flour shows as well a positive albeit rather small value. The RTA values for Lithuania in 1995 hint at a competitive advantage in the production of vegetable oil and margarine (see Table 5.15), while the RTA values for these products were negative in previous years. What is the explanation for this result. First of all the protection level for producing rapeseed is relatively high in Lithuania. While in 1995 (1994) the overall Producer Subsidy Equivalent amounted to 13 % (20) the respective number for oilseed was 34 (67). In

addition in 1993 two oilseed crushing plants were built in Lithuania giving an additional incentive for agricultural producers to grow rapeseed and making possible the processing of the oilseeds in the domestic market (OECD, 1996, Lithuania, p. 99).

With respect to soybeans and the processed product soybean oil and meal the numbers in Table 5.15 are negative. Climatic conditions are in Lithuania for the production of this seed not favourable and are a driving force behind this result. The same holds for all fruits but apples and for all vegetables. Table 5.15 reveals also negative values for the EU with respect to the considered fruits and vegetables, although in general the indicated degree of competitive disadvantage seems to be more pronounced in Lithuania. The indicator reveals negative values for wine and beer in Lithuania, while these products have a competitive advantage in the EU. Those agricultural products not covered in the product list show a positive RTA value in Lithuania while a small competitive disadvantage is revealed for those products in the EU.

Finally, it should be noted that the aggregate non-agricultural products in Table 5.15 reveals positive RTA values in Lithuania and the EU. This result indicates that the agricultural sector as a whole must have a comparative trade disadvantage compared to total trade. The same result has been obtained for Estonia and Latvia (see section 3.3.2.2 and 4.3.2.1).

Lithuania is still in a transformation process, and is therefore experiencing strong shifts in competitiveness, even from year to year. Therefore the results presented in Table 5.15 can only be indicative of the competitive position of Lithuania in the agrofood sector in 1995.

5.3.2.2 Overall Bilateral Complementarity in Trade Advantage between Lithuania and the EU

Trade advantages in the same product groups in the EU and Lithuania indicates a high level of competitiveness between both countries especially after accession of Lithuania to the EU. A complementary structure of agricultural trade advantages between Lithuania and the EU would indicate less competitive pressure. What is prevalent can be analysed with the OBC (see 4.3.2.2). The OBC between Lithuania and the EU amounts to -0.509 for 1995, thus pointing to the fact that competitiveness rather than complementarity will determine the trade relationship between Lithuania and the EU after the accession of the former to the EU.

5.3.2.3 Similarity in Trade and Trade Advantage between Lithuania and the NewMCs

As Latvia also Lithuania will not be in the group of Central and East European Countries that will enter the EU in the first round of east enlargement (see section 4.3.2.3). The enlargement of the EU theoretically gives rise to two effects: trade creation and trade diversion. The latter could have negative repercussions for Lithuania. This is likely to occur if the EU is of relevance as an export market for Lithuania. With 18 % of all Lithuanians´ agricultural exports going to the EU in 1996 this region is rather important as a destination for Lithuanian exports. Trade diversion thus might occur if the NewMCs export the same type of commodities to the EU-15 as Lithuania, and if trade barriers for exports of those products to the EU exist at the time of east enlargement. Where exports are not similar or European import tariffs are close to zero, there is little scope for trade diversion.

The level of protection granted in the EU varies considerably for different agricultural products. This aspect will be neglected here; the possibility that the first east accession may divert trade away from Lithuania will be assessed exclusively on the basis of the degree of similarity (in comparative advantage) between exports from each of the NewMCs and Lithuania to the EU. For

this purpose the Export Similarity Index of Finger and Kreinin and the Similarity in Trade Advantage Index are calculated (see also 4.3.2.3).

The results of the Export Similarity Index (see Table 5.16) suggest that Lithuania is especially affected by the accession of Estonia and Poland; the overlap with these two countries in exports to the EU amounts in 1996 to 47 % and 36 %, respectively.

The similarity index is also analysed for four different groups of agricultural and food products to reveal in which product areas the repercussions of an EU east enlargement might be greatest for Lithuania. The importance of the four product categories in total agricultural exports from Lithuania to the EU are as follows:

- raw products: 2 %
- minimally processed products: 28 %
- semi-processed products: 52 %
- highly processed products: 17 %.

Table 5.16 shows especially high s_{ij} values for Lithuania in combination with the NewMCs Estonia in the product category "semi processed products". Considering that in 1996 about 52 % of Lithuanian agricultural exports to the EU consisted of semi processed products, this would indicate that Lithuania might be especially affected in this product groups (see Table 5.16). The high degree of overlap between Lithuania and Estonia in this product group is, however, to a large extent not due to agricultural products, but related to exports of fish fillets. Another important area of similarity are milk products. In addition Table 5.16 reveals high s_{ij} values for Lithuania in combination with the NewMCs Poland in the product category "highly processed products".

Table 5.16: Similarity between Lithuanians´ and NewMCs´ Exports to the EU

	Czech Republic		Estonia		Hungary		**Poland**		**Slovenia**	
	Average 1994-1996	1996	Average 1994-1996	1996	Average 1994-1996	1996	Average 1994-1996	1996	Average 1994-1996	1996
Similarity of Trade Index[1]										
All Agricultural and Food Products	0.22	0.23	0.37	0.47	0.17	0.16	0.41	0.36	0.22	0.20
Agricultural Raw Products	0.13	0.12	0.38	0.45	0.10	0.09	0.29	0.28	0.18	0.06
Minimally Processed Agricultural and Food Products	0.25	0.21	0.26	0.33	0.19	0.17	0.37	0.34	0.23	0.18
Semi-processed Agricultural and Food Products	0.33	0.38	0.52	0.61	0.28	0.27	0.34	0.33	0.24	0.23
Highly Processed Agricultural and Food Products	0.15	0.11	0.28	0.35	0.13	0.12	0.60	0.56	0.18	0.19
Degree of Similarity in Trade Advantage[2]										
All Agricultural and Food Products	0.45	0.43	0.44	0.56	0.27	0.22	0.68	0.79	0.54	0.64

1) Measured with the Finger-Kreinin Export Similarity Index.

2) This index is equal to the share of Lithuanians´ export for which the Relative Export Advantage Index in Lithuania and the considered NewMC is greater than 1

Source: Own Calculations based on data from EUROSTAT

The results of the Similarity in Trade Advantage Index are as well summarized in Table 5.16. The numbers reveal a high overlap in competitive advantage of Lithuanian trade with the EU for Poland, Slovenia and Estonia in 1996. More than 75 % of exports from Lithuania to the EU may be exposed to increased competition from Poland. While the calculation based on this index suggests that Lithuania might be affected most by the entry of Poland and Slovenia into the EU, the similarity index indicated that Estonia´s and Poland's entry into the EU will pose the biggest problem for this country. This seemingly discrepancies can be partly explained by the different approaches. The similarity index calculates the degree of overlap in trade independent whether the considered countries possess a competitive advantage in those products where this overlap takes place. In contrast, the second indicator estimates whether Lithuania and a NewMC have a comparative advantage in a specific product/product group measured by the RXA, and then sums up the percentage of exports of Lithuania to the EU for which this holds. Thus the respective values for the similarity index may be identical to, lower, or higher than those for the Similarity in Trade Advantage Index.

The analysis so far can only give a first indication with respect to the possible repercussions of the first east enlargement on Lithuania. As already pointed out in section 4.3.2.3 further studies also need to consider the post-accession level of EU protection expected on those markets where a high degree of similarity has been detected between NewMCs and Lithuania, since trade divergence will take place on markets with a high level of EU protection.

5.3.3 Agricultural and Food Sector Model

Agricultural and Food Sector Model evaluates the trends of agricultural production and consumption of foodstuff in 2005. The year 1996 is taken as a base for a forecast. Four different scenarios are calculated:

- Base scenario (referred further as BASE);
- EU scenario (referred further as EU);
- Agenda 2000 scenario (referred further as A2);
- World Market scenario (referred further as WM).

Input data

The initial data for the model are agricultural output and use of agricultural and food products in Lithuania , as well as farm and retail prices. The base year is 1996 (Table 5.17).

Table 5.17: Supply, demand and prices for main agricultural and food commodities in 1996

	Supply, thous. t	Demand, thous. t	Farm price, Lt/kg	Retail price, Lt/kg
WHEAT	756.6	951.8	0.76	1.88
CGRAIN	445.8	158.1	0.61	0.92
POTAT	849.5	538.9	0.27	0.88
OILS	13.5	47.5	2.24	3.50
SUGAR	142.9	87.200	1.23	3.39
VEGET	414.0	263.400	0.83	1.20
MILK	1831.5	1730.900	0.60	1.59
BEEF	83.0	87.000	5.22	9.97
PORK	88.5	95.700	5.53	9.32
EGGS	46.9	47.300	4.80	5.50
POULTRY	25.2	26.400	5.25	9.16
MUTTON	0.0	0.0	5.50	9.30
FWHEAT	86.0	86.0	0.61	
FCGRAIN	1291.1	1291.1	0.49	
FPOTAT	1092.5	1092.5	0.13	

Macro Assumptions

In 1996 the official employment in agricultural sector was reported to be 383.7 thousand with the average income 4572 Litas per year.

Average annual population in 1996 - 370.9 thousand. people.

Average annual income per capita - 5624 Lt.

Annual growth rate of population - minus 0.001 per cent.

Annual growth rate of GDP - 3.6 %.

Price assumptions for alternative scenarios

The table 5.18 shoes the EU farm gate prices, EU farm gate prices under Agenda 2000 and world market prices in litas in 1996, used in model.

Table 5.18: Farm price projections for alternative scenarios, Lt/kg

	FGPEU	FGPA2	PW
WHEAT	0.60	0.51	0.56
CGRAIN	0.58	0.49	0.49
POTAT	0.36	0.36	0.36
OILS	2.00	2.00	2.00
SUGAR	2.22	2.22	1.99
VEGET	0.96	0.96	0.96
MILK	1.37	1.23	0.73
BEEF	12.80	10.24	5.74
PORK	6.44	5.80	4.70
EGGS	3.68	3.31	3.59
POULTRY	4.00	3.60	4.00
RAO	4.00	4.00	1.00
FWHEAT	0.41	0.35	0.40
FCGRAIN	0.41	0.35	0.37
FPOTAT	0.21	0.21	0.18
RVI	0.53	0.53	0.00
LABOR	13.72	13.72	11.43
ROSP	1.00	1.00	1.00

Short current price support description

In Lithuania current price support is provided to farmers via government determined minimum purchase prices, price subsidies and direct payment system. Price subsidies are paid to farmers for products marketed to processing enterprises within the government determined quotas. In livestock sector price subsidies are extended to milk. In 1995 - 1997 all milk output marketed to processing enterprises was considered to be within quota and was subject to price subsidies. Subsidies were differentiated between winter and summer period (70 and 50 Lt/t) and in general did not exceed 10 per cent of the respective price for any quality grade of raw milk. Fed cattle was and continues to be subject to direct payments for each head marketed to processing enterprises subject to quality requirements (weight, breed, quality category). No minimum purchase prices are administered. Poultry and later in 1997 pigs are subject to contract prices, and no government intervention is involved in setting quotas or minimum purchase prices.

In case of crops, list of commodities subject to market intervention and government support is more extensive and is changing from year to year. In 1997 it applied to a shorter list of

commodities compared to 1995-1996. Minimum purchased prices without price subsidies were established for food wheat, sugar beets, protein legumes. Later in the year, responding to world market price developments, the Government has introduced price subsidies for food wheat equal to 70 Lt/t. Such crops as rye and buckwheat were subject to price subsidies only in areas with poor quality soils as additional support to farmers farming in disadvantaged areas. Flax continued to be heavily subsidised at 50-60 per cent of farm price, however quality requirements for subsidy eligibility were increased substantially. Rape seed production is also subsidised with the aim to lessen country's dependence on imported protein supplements for animal feed enrichment.

Fruit and vegetables continued to be deregulated subject to supply and demand conditions in the domestic market.

Despite of the Government intervention in farm output pricing mechanism, it cannot be considered as very distorting. Farm price increase in nominal terms has not been sufficient to offset the inflation. As a result, farm prices in real terms have declined considerably between 1990 and 1995 with some stabilisation in 1996. (Table 5.19).

Table 5.19: Lithuanian real producer price indices, 1990-1996 (Dec. 1990 = 100)

Product	1990 Dec.	1991 Dec.	1992 Average	1993 Average	1994 Average	1995 Average	1996 Average
	Producer price						
Cattle (l.w.)	100.0	57.2	47.5	46.4	28.0	24.1	25.0
Pigs (l.w.)	100.0	63.3	81.8	81.6	63.3	48.4	49.2
Broilers (l.w.)	100.0	66.2	54.7	65.0	79.2	62.1	56.9
Milk	100.0	30.4	63.5	46.6	25.4	28.8	27.1
Eggs	100.0	141.2	153.7	132.7	89.0	74.9	71.8
Grains							
Wheat	100.0	51.2	86.0	61.2	33.9	37.3	50.9
Barley	100.0	46.1	73.2	52.1	25.2	28.8	42.2
Potatoes	100.0	63.7	67.7	75.1	37.3	55.7	28.0
Sugar beets	100.0	124.6	47.7	33.9	22.8	22.4	20.9

Source: Department of Statistics

Despite of the government interference in pricing mechanism and average market protection, farm price levels in Lithuania continue to be lower for majority of commodities compared to world market prices (Table 5.20.).

Table 5.20: Comparison of Lithuanian farm prices and world market prices, 1990-1996, US$/ton

		1990	1991	1992	1993	1994	1995	1996
Cattle, l. w	Lithuania	172135	7157	174134	383327	449378	538411	705556
	OECD ref. Price Beef and veal * (l.w.equiv., Hungary)	700550	564455	617476	780665	871733	1003767	1110875
Pigs, l. w.	Lithuania	163128	7460	303234	674575	965812	1033790	13341052
	OECD ref. Price Pig meat* (l.w.equiv., Hungary)	1105868	1047844	1183912	1013864	995837	1302995	14901175
Poultry	Lithuania	140110	6754	171132	477407	1034870	1137869	13101033
	OECD ref. Price* (EC)	1200943	1219983	1258970	1150981	1174988	1236945	13531067
Milk	Lithuania	3225	76	4736	7261	7563	11991	152120
	Australia average farm	179141	189152	202156	181154	204172	230176	228180
	OECD ref. Price* (New Zealand)	12296	129104	144111	138118	147124	183140	195154
Eggs	Lithuania	8164	7964	311240	530452	704592	837640	1111876
	OECD ref. Price* (EC)	1012795	1023825	927715	930793	968814	882674	13761085
Wheat	Lithuania	2318	97	4837	7261	7563	11588	197155
	OECD ref. Price* (EC)	143112	9879	134103	117100	11597	164125	202159
Barley (non malt)	Lithuania	2318	76	4132	6051	5546	8968	162128
	OECD ref. Price* (EC)	10986	9677	10480	8472	8168	12898	170134
Potatoes	Lithuania	1512	76	2721	5446	5345	135103	6753
	OECD ref. Price* (Germany)	10683	12097	8868	5648	134113	269206	9373

*Used by the OECD in calculations of PSE and CSE for Lithuania (OECD 1996)

Source: Ministry of Agriculture and Forestry

However price support and market regulation are loosing their significance as policy measures gradually giving way to rural development and investment support measures which is reflected in the structure of the Lithuanian agricultural budget (Table 5.21).

Table 5.21 Agriculture budget for 1997 compared with 1996, mil Litas

	1996	1997
Rural Support Fund (NAP in 1996)	376.6	397.0
Total at disposal of the MoAF	376.6	307.0
Farm Price Subsidies	195.0	210.0
Cattle	83.3	80.0
Pigs	15.8	10.6
Milk	70.7	75.7
Rye	4.6	5.7
Rape seed	2.3	3.4
Feed Legumes	3.8	4.0
Buckwheat	0.5	2.0
Flax	14.0	15.0
Export Subsidies	0	13.6
Subsidies for Quality Breeds and Seeds	14.5	16.0
Credit Interest Subsidy for Fuel, Fert., and Chem.	20.4	10.0
Rural Loan Partial Guarantee Fund	0	20.0
Total at disposal of Regional Agriculture Boards	0	90.0
Investment Grants Programme	0	80.0
Disaster Assistance Programme	0	10.0

Source: Ministry of Agriculture and Forestry

This tendency switching from price support to quality improvement and investment support is likely to continue in the future with natural price adjustment to the world market price levels.

Elasticity assumptions

The most important and at the same time most complicated part of model assumptions are estimates of set of elasticities. Major difficulties are related to the fact, that the statistical data collection system had undergone serious changes and improvements since 1993, when the World Bank supported project has improved family budget survey system with better sampling and more comprehensive data analysis. However, time series are considerably short to provide the sufficient data base for proper estimations. On the other hand, monetary policies were in the process of evolution. Comparisons and future projections would need to take into account introduction of the national currency unit in 1993, introduction of the currency board in 1994 and proposed exit from

the currency board in 1998-1999. For these reasons, the elasticities used in the model were rather calibrated. Another option is to use elasticities from other studies estimated for countries located in similar natural and economic environment.

The set of elasticities used in the Lithuanian model are the same as in the other two Baltic country models. They include own price elasticities of supply and demand as well as income elasticities (Table 5.22). Income elasticities are more problematic, since the country has not yet moved to obligatory income declaration system and while conducting domestic analysis we rather rely on expenditure elasticities than income.

Table 5.22 Price and Income Elasticities used in agricultural sector model

	Supply	Demand	Income
WHEAT	0.4	-0.05	0.050
CGRAIN	0.5	-0.02	0.050
POTATO	0.3	-0.10	-0.005
OILSEEDS	0.5	-0.20	0.020
SUGAR	0.5	-0.40	0.020
VEGETABLE	0.3	-0.60	0.200
MILK	0.6	-0.20	0.005
BEEF	0.4	-0.50	0.200
PORK	0.6	-0.50	0.200
EGGS	0.6	-0.30	0.200
POULTRY	0.6	-0.40	0.200
MUTTON	0.0	-0.10	0.200
FWHEAT	-0.7		
FCGRAIN	-0.7		
OILSEEDS	-0.1		
RVI	-0.4		
LABOUR	-0.3		
ROSP		-0.10	0.085

Short description of model results

Calculations were carried out for the year 2005 as a potential hypothetical year of the EU enlargement and Lithuania's membership. Sets of the results include base scenario and three comparative scenarios.

Supply

Table 5.23 Projections of farm prices and agricultural output for the year 2005

	Projected farm prices, Lt./kg				Projected farm output, thous. t			
	BASE	EU	A2	FWM	BASE	EU	A2	FWM
WHEAT	0.71	0.55	0.51	0.50	884.63	765.76	769.20	809.94
CGRAIN	0.63	0.59	0.51	0.51	554.99	623.68	588.43	600.69
POTAT	0.23	0.32	0.36	0.32	962.05	1029.07	1070.88	1093.33
OILS	2.30	2.06	2.14	1.92	16.71	13.69	13.24	14.42
SUGAR	1.32	2.30	2.23	2.06	179.68	219.06	213.55	228.04
VEGET	0.79	0.93	0.96	0.93	536.82	497.48	513.31	568.57
MILK	0.61	1.38	1.24	0.73	2448.42	5439.00	4858.44	3296.41
BEEF	5.40	12.98	10.27	5.90	101.87	228.25	200.90	131.33
PORK	5.26	6.17	5.81	4.42	101.66	110.33	113.38	103.15
EGGS	4.72	3.60	3.51	3.49	55.19	33.90	35.43	43.96
POULTRY	5.10	3.85	3.85	3.84	29.60	15.52	16.46	21.83
FWHEAT	0.57	0.37	0.36	0.36	116.71	272.33	256.20	180.16
FCGRAIN	0.50	0.42	0.38	0.38	1693.67	3677.36	3514.08	2248.07
FPOTAT	0.12	0.19	0.21	0.16	1472.88	1399.51	1435.49	1384.42

Price comparison across scenarios with the level of farm prices in 1996 shows (Table 5.23), that the first two scenarios (BASE and EU) foresee considerable price decline for major agricultural commodities. However, farm price decline in BASE scenario is more modest (usually not exceeding 10 per cent), farm price decline in the second scenario (EU) is more significant, reaching up to 30 per cent for some commodities. The most effected commodities are wheat (28 per cent decline) and poultry (27 per cent price decline). And this outcome is really expected and well reflects the actual situation in 1996: as a result of the government intervention in pricing in 1995 and 1996, grain (mainly wheat) prices in the domestic market were considerably higher than the world market prices. As a result, it caused a severe impact on pig and poultry industries (both grain dependant) increasing farm prices for those commodities. This as well as low efficiency in the above mentioned subsectors sharply reduced their competitiveness both in the domestic and external markets.

However, in the second (EU) scenario farm prices for some commodities have tendency to grow compared to 1996 actual farm prices. As it should normally be expected, milk and beef prices in this scenario show biggest increase, since at present they are considerably below world market prices and cost - price adjustment process is not yet over. However, talking about beef prices, one

has to keep in mind the necessity to use price correction coefficient to reflect the breed and quality differences. For this commodities, farm price increase is respectively 131 and 149 per cent. Among crops, the biggest price increase is in potatoes (22 per cent) and sugar (86 per cent).

As it could be expected with farm price increase, projected output in BASE scenario is going up 15 to 30 per cent depending on commodity. However, in the second (EU) scenario, poultry and egg output declines by 30 per cent (reflecting price tendency). For the same reason, moving towards considerably higher farm prices, milk and beef output has a potential to almost double.

Such a big increase can be explained by the big difference between farm and retail prices in Lithuania in 1996 and the difference between the retail prices in Lithuania and EU in 1996 because the difference of these prices was taken as a bases for model calculations.

Demand

On the demand side, the results of the calculations are presented in the table 5.24.

Table 5.24: Projections of retail prices and consumption for the year 2005

	5.1.4.1 Projected retail prices, Lt./kg				Consumption, thous. t			
	BASE	EU	A2	FWM	BASE	EU	A2	FWM
WHEAT	1.74	1.58	1.55	1.54	937.91	979.38	982.78	965.77
CGRAIN	0.94	0.91	0.82	0.82	154.87	157.54	157.69	156.31
POTAT	0.76	0.85	0.89	0.85	420.54	486.49	475.17	441.73
OILS	3.37	3.13	3.21	3.13	47.62	51.75	50.81	48.87
SUGAR	3.59	4.57	4.50	4.35	79.75	74.34	75.69	75.23
VEGET	1.15	1.29	1.32	1.29	264.55	276.71	270.94	257.43
MILK	1.61	2.38	2.24	1.74	1665.29	1542.63	1553.88	1619.64
BEEF	10.27	17.85	15.13	10.79	88.67	70.20	75.00	82.69
PORK	8.85	9.75	9.39	8.02	99.99	121.74	114.69	106.06
EGGS	5.38	4.26	4.17	4.17	48.47	58.42	57.39	53.45
POULTRY	8.88	7.63	7.63	7.63	26.61	30.34	29.31	27.27

Retail price comparison in BASE scenario to the actual price level in 1996 shows that for the majority of food commodities price decline will be around 2 to 7 per cent. Bigger changes are true for the second (EU) scenario but with even greater magnitude. Following farm price increase for milk and beef, retail price for these commodities is supposed to go up 50 and 79 per cent respectively. However, retail price increase is lower than farm taking into account improved efficiency and better utilisation of production facilities. The same is true for sugar with retail price increase of 35 per cent. Following farm price dynamics, retail price for wheat products is expected to decline 16 per cent, eggs and poultry - 23 and 17 per cent respectively. Besides farm price tendencies, major impact on retail price level is expected through abolishing the import tariffs and stronger competition in the EU single market.

What deals potatoes, the price for this commodity is subject to great fluctuations from year to year as well as within the year. In Lithuania potatoes are produced mainly by small-scale farmers and are marketed in the domestic market. The same is mostly true for eggs (domestic market oriented production).

Foreign trade

On the trade side, as it could be logically expected due to comparative advantage of milk and dairy products, beef, sugar as well as vegetables, exports of these products has good potential. However, it is likely, that Lithuania is likely to be a net importer of pork and poultry (Table 5.25).

Table 5.25 Net exports of main agricultural products for different simulation scenarios, thous. t

Products	BASE	EU	A2	FWM
WHEAT	-169.99	-485.94	-469.79	-335.98
CGRAIN	-1293.55	-3211.21	-3083.34	-1803.70
POTATOES	-931.36	-856.92	-839.78	-732.82
OILS	-30.92	-38.06	-37.57	-34.45
SUGAR	99.93	144.72	137.86	152.81
VEGETABLES	272.27	220.76	242.37	311.14
MILK	783.12	3896.37	3304.56	1676.77
BEEF	13.20	158.05	125.90	48.64
PORK	1.67	-11.41	-1.31	-2.90
EGGS	6.73	-24.53	-21.96	-9.48
POULTRY	2.99	-14.81	-12.85	5.43

In case of cereals, all four scenarios show that it is expected that Lithuania continues to be net importer of both wheat and coarse grains. Food wheat imports are traditional for Lithuania since there is need to import durum wheat for domestic bread and flour production, since this type of wheat is not domestically produced because of unfavourable climatic conditions. Net imports of feed grain is mainly caused by the increase in livestock output observed in all simulation scenarios.

Traditional farm product - potato - according to all scenarios has to be imported in pretty big quantities (7 to 9 hundred thousand tonnes) which shows its relative inefficiency of production and low competitiveness. However, field vegetables show a considerable export potential in all four scenarios with net exports ranging from 220 thous. tons in the EU scenario to over 300 thous. tons in the world market price scenario. Keeping in mind that the predominant part of field vegetables is produced by the subsidiary plots holders, it provides a good indication regarding their potential survival in the case of narrow specialisation in horticultural production.

Such products as pork, eggs and poultry are expected to stabilise around the domestic market needs with a small net exports of pork, poultry and eggs in the BASE scenario. In case of poultry

and eggs, the results reflect trade balance in the past several years and presents a well expected outcome.

Vegetables oils are estimated to be imported commodity with imports exceeding exports of the domestically produced rape seed oil by 30 to 40 thousand tons, what well reflects the current situation.

Sugar shows net export potential in all four model scenarios with a variation of 100 to 150 thous. tons as net exports.

Milk and beef being closely interrelated because of the dual purpose cattle breed in Lithuania follow the same tendency showing good perspective for exports and witnessing potential competitiveness of the sector under all four model scenarios. This results logically reflect traditional specialisation of the Lithuanian agriculture in cattle breeding and corresponds to favourable natural-climate conditions of the country possessing big areas of natural and improved pastures for cattle grazing. The biggest potential trade balance surplus for beef and milk are obtained under the EU scenario: close to 4 mill. Tones of milk and over 150 thous. mt of beef.

Summarising, it has to be noted that production of field vegetables, milk, beef and sugar seems to have good potential for the development in Lithuania presenting the country's comparative advantage after integration into the EU single market.

6. SUMMARY AND COMPARISON

In their Europe Agreements with the EU, the Baltic countries stated their intention of joining the EU. Therefore, these countries must prepare themselves for this event to ease the process of accession. Agriculture requires special attention, because it still represents a large share of the total economy in these countries. An understanding of the competitiveness of agricultural and food products in these countries is essential for providing the necessary economic framework to make the process of joining the EU as smooth as possible.

This study is a first attempt to analyze the competitive position of the three Baltic countries as it is at present and its development after joining the EU. Its aim was also to analyze the underlying forces that determine competitiveness in the three countries. The results give a first indication that especially the milk and beef sector has a competitve advantage while this does not hold to the same degree for crop production.

Competitive advantage is promoted or impeded by the factor conditions of a country, the firm structure, the competitiveness of the downstream sector as well as the demand conditions. These four determinants form a mutual-reinforcing system. By examining the agricultural and food sector in the Baltics with respect to these four determinants as well as with respect to the variable government the competitiveness of the agricultural sector as revealed at present was analyzed. In addition, changes in those main determinants are investigated to arrive at the likely development of the competitive situation in the Baltic countries.

The study reveals that the endowment with agricultural land is very favourable in the Baltic countries, but many other main determinants of competitiveness such as quality of soil, climatic conditions, input supply and quantity as well as quality of processing and distribution facilities and the scale and quality of the consumer market are major impediments for agriculture of these countries in gaining international competitiveness. However, it has to be recognised that economies are developing favourably in all Baltic countries. The structure of agriculture is going through a rapid transformation. Socialistic systems have been dismantled and the private ownership of land has been established.

Producer prices are close to world market levels or somewhat below in the Baltic countries and in general far below EU-prices. This holds especially for animal products. Wages are substantially lower than that in the EU. This and the lower quality of the products can be regarded as the main reasons for low producer prices. Of course, the relation of agricultural prices in the Baltics and those at the world market has also to be assessed in view of the general price levels in these countries.

Low wages are reflected also in low costs of agricultural production. Capital costs and the rent for land are as well relatively low. Buying land is not very often exercised. However, prices of other inputs are less inexpensive. Most inputs imported by the Baltics are as expensive as for western countries. Nevertheless due to the lower costs for labour, capital and land production costs are still low if compared with the EU. The situation will, however, change. New investments are much more expensive since they are of foreign origin. One can also expect labour costs to rise relative to all other input prices.

This qualitative analysis with respect to the major determinants of competitiveness and the evaluation of their significance for the respective agricultural and food sectors reveals that the agricultural sector in the Baltics is faced with advantages and chances but also with problems and deficiencies. An aggregation of those advantages and disadvantages is not possible. This holds even more given the fact that in the concept of international competitiveness only relative changes are of relevance. Thus to get at all a hint with respect to the international competitiveness of the agricultural and food sector in the Baltics it is necessary to estimate it with the help of indicators and/or models. Thus an empirical analysis is carried out in this study.

The analysis based on accounting methods such as production costs and gross margins (profitability) reveals heterogenous results. However, after an EU accession profitability seems to be especially pronounced for milk and beef. This is due to the relative low production costs. Producer prices of milk, beef and pork are currently much lower than those in the EU and will increase after accession.

The analysis based on trade indices confirms the competitiveness in the production of beef and milk products. The values of the Relative Revealed Comparative Trade Indicator show, that ruminant meat and milk production have a competitive advantage while especially crop production appears to be less competitive in the Baltic states. This very general result can be explained with the unfavourable climatic and soil conditions for growing grain, oilseeds and sugar beets.

The ex-ante quantitative analysis is based on a partial equilibrium model for the food and agricultural sector of each of the Baltic countries. The results of the simulation indicate that the Baltic countries will also in the future have a comparative advantage especially in the area of beef and milk production. For these products production will strongly increase after integration. However, also production of other animals is forecast to rise due to the increase in producer prices after accession to the EU. How much of this potential may be realised will depend on the ability of these countries to carry out the investment necessary. The accession agreement and its provisions on government support will also determine the response of Baltic agriculture after joining the EU.

The results presented in this study should, however, be interpreted with some caution since the Baltic states are still in the process of restructuring. Thus considerable intra- and intersectoral adjustments in the allocation of resource are still taking place. The annual fluctuation in production and trade is still much higher than in other countries like the EU. Although these limitations have to be taken into account the study indicates a high level of competitiveness especially in the livestock sector in the Baltic states. An answer with respect to the future competitiveness in the agricultural and food sector depends also very much on changes in the technology induced by price and other adjustments

It has to be noted that the competitiveness of agriculture in the Baltic countries will be crucially affected by the efficiency of the processing industry and distribution enterprises which very much are in need of improvement, too. This concerns also the quality of the processed products. Thus additional production incentives due to an EU-East Enlargement would be severely reduced if the Baltic states were not to successfully improve the down-stream sectors.

Finally, rural infrastructure is to be brought to a level compatible with the EU; especially transportation. The Baltics also need to adjust their institutions as far as they are not to be taken over by the EU. Education is of concern since as a long term investment transition countries pay too less attention to this important factor of competitiveness.

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