20 years of transition – institutional reforms and the adaptation of production in Estonian agriculture

20 Jahre Transformation – institutionelle Reformen und Anpassung der landwirtschaftlichen Produktion in Estland

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Abstract

This article provides an overview of the most important reforms, their background, and corresponding changes in Estonian agriculture during the transition period from 1988-2008. The past two decades have been divided into three sub-periods to outline differences in dynamics and the direction of changes in agriculture. From 1988-1995, the main reforms were implemented and agricultural production decreased rapidly. From 1995-2001, the decline stabilised and nonviable farms exited the sector. From 2001 onwards, the positive effects of the EU pre-accession period and EU membership can be observed.

Key words

transition; institutional reforms; EU enlargement; Estonian agriculture

Zusammenfassung

Das Ziel des vorliegenden Artikels ist es, einen Überblick über die wichtigsten Veränderungen in der estnischen Landwirtschaft im Transformationszeitraum 1988-2008 zu geben. In den letzten zwei Jahrzehnten gab es drei Entwicklungsperioden. 1988-1995 wurden die wichtigsten Reformen durchgeführt, und die landwirtschaftliche Produktion ist stark gesunken. 1995-2001 hat sich der Rückgang stabilisiert, der Sektor war teilweise nicht lebensfähig, und private Betriebe haben den Sektor verlassen. Seit 2001 kann man die positiven Auswirkungen des EU-Beitritts auf die Landwirtschaft beobachten.

Schlüsselwörter

Transformation; institutionelle Reformen; EU-Erweiterung; estnische Landwirtschaft

1. Introduction

Since the Republic of Estonia regained its independence in 1991, major reforms have been implemented in all spheres of governance and economy. Reforms in the agricultural sector, however, began at the end of 1980s when the start-up of private farms was legalised. From 1990-1992 land, proprietorship, and agricultural reforms were initiated. These reforms were aimed at reorganising the agricultural sector into private farms and restituting land that was nationalised during the Soviet era. In the 1990s, Estonia applied an extremely liberal economic policy without trade barriers on food and agricultural commodities. In 1996, the decision to attain European Union (EU) membership was taken. Since then, Estonian legislation, together with agricultural policy, has been consistently harmonised with EU laws and policies. The pace of harmonisation accelerated from 2001-2004 and from 1 May 2004, together with nine other CEECs (EU-10), Estonia became a member of the EU. However, the harmonisation of agricultural policy within the current EU-27 is ongoing. The main differences in Common Agricultural Policy (CAP) application between the old and new member states are related to direct payment schemes, and notable differences in subsidy levels. Therefore, the transition of agricultural sectors of the EU-12 will continue during the upcoming EU budget period of 2014-2020, i.e., for 10 more years.

Therefore, the aim of this paper is to present an overview of the institutional reforms since the end of 1980s, whilst comparatively following the changes in structures, production volumes, productivity, and trade patterns in the Estonian agricultural sector. Interrelations of the reforms and performance of the agricultural sector are discussed. The period of 1988-2008 is divided into three sub-periods to display the differences in dynamics and the direction of changes in these sub-periods. The first phase of transition was from 1988-1995, when major reforms were initiated and previous production relationships collapsed. From 1995-2001, a reorganised and privatised agricultural sector adapted to the new institutions and markets. From 2001 onwards, the impact of the impending EU accession could be detected. This article is organised as follows – major reforms and developments in agriculture are reviewed in the second section. Changes in the performance of agriculture are examined in the third section. The causal relationships between the reforms and the development of agriculture are discussed throughout the article. In the fourth section, principal conclusions are drawn.

2. Institutional reforms and agricultural policy

2.1 Pre-transition period

At the end of 1980s, Estonian agriculture was one of the most developed in the Soviet Union (USSR) (UINT et al., 2005). The agricultural sector specialised in livestock and dairy production, which was mainly exported to the cities of the Russian SSR, notably Leningrad (St. Petersburg) only some 300 km away from Estonia (WALTER-JORGENSEN and LUND, 1997; TOMSON, 1999; SILBERG, 2001; UNWIN, 1997: 97). Estonia was the highest per capita producer of milk and meat in the USSR, exceeding even EU and USA averages (see table 1). In the USSR, the average Estonian milk yield was the highest and cereal yields were second after the Moldavian SSR. While milk yield was comparable to the EU level in 1985, cereal yields lagged behind both EU and USA averages. High productivity and increasing production resulted in a rising level of wages. Estonian collective farm workers had higher average wages than workers in other USSR states (74% higher than the USSR average).

Table 1. Agricultural productivity characteristics in selected states of the USSR, EU and USA in 1985

	Average milk yield, kg/cow	Milk production per capita, kg	Meat production per capita, kg	Weighted average yield of cereals in 1981-1985, hkg/ha	Average monthly wage in kolkhozes in 1986, rubles
Estonian SSR	3 966	817.1	140.1	26.1	284
Latvian SSR	3 362	746.4	123.6	21.5	223
Lithuanian SSR	3 444	825.1	139.9	23.6	197
Ukrainian SSR	2 601	451.8	76.8	24.3	148
Russian SSR	2 347	348.2	59.1	14.0	180
USSR in total	2 451	353.7	61.4	14.9	163
EU*	3 986	402.3	89.6	47.7	-
USA*	5 913	267.1	106.3	42.9	-

* Data for EU and USA was obtained from FAOSTAT (2009).

Source: STATISTICAL YEARBOOK (1986)

A remarkable part of the infrastructure in rural areas was funded from agricultural income (EMA, 2005: 32). Also, collective farms provided a variety of agricultural and non-agricultural services to rural residents (SILBERG, 2001; RAAGMAA, 2002; KALMI, 2003).

2.2 Changes from 1988-1995

Reforms in Estonian agriculture began in 1988, when regulations were adopted for the allocation of the marginal land of collective farms to private farms, as well as the selling of agricultural machinery to private farms (EMA, 2002). The Farm Law of 1989 envisaged the establishment of hereditary (based on the pre-collectivisation farms) and new tenant farms (on rented land) (MAIDE, 1995).

In 1991, the principles of the Ownership Reform Act were adopted. The main goals were the reorganisation of pecuniary circumstances in order to guarantee intact proprietorship and free business activity, the redemption of injustice, and the foundation of preconditions for the restitution or compensation of former proprietors or their heirs.

Land and agricultural reforms were the two major reforms that aimed to transform Estonian agriculture and society from a planned economy to a capitalist market economy (ALANEN, 1999; SARRIS et al., 1999). The Estonian Land Reform Act was adopted in 1991. In the CEECs, land reform involved two separate issues: the legal demands of pre-collectivisation landowners ('historical justice'), and social equity concerns (SWINNEN, 1999: 638). In order to address those issues, the goal of the land reform was to return land to its lawful owners. The reform also enacted the privatisation of land by pre-emptive rights (for people whose buildings were located on land subject to privatisation) or on general grounds (for rural inhabitants in the vicinity of their homes) (EMA, 2002).

Initially, the main focus of land reform was on restitution, and the first returned cadastral units were registered in 1993. The land reform process intensified from 1996 onward, and the privatisation of free agricultural and forestlands began in 1999 (EMA, 2005). The process progressed slowly because of complex legal and administrative issues. By the end of 1996, around 12% of land had been registered in the land cadastre; this number rose to 51% by the end of 1999, 78% by the end of 2004, and by March 2009, 84% of land had been registered (ELB, 2009). About 40% of that land is restituted; 35% is state-owned with 0.7% in municipal ownership; 19% is privatised or bought; and around 6% is free agricultural or forestland.

The Land Reform Act was amended more than 30 times in the 10 years following its adoption. Slow land reform hindered the development of agriculture due to uncertain property relations. Part of the problem was that neither the complexity of the land reform nor the conflicts had been foreseen (ULAS, 2006). Another issue arose from the restitution of land according to the pre-war farm boundaries. The average size of a farm was 22.7 hectares in 1939, of which only 7.9 hectares were arable land (VIRMA, 2004: 188). Restitution resulted in even more fragmented land ownership, since land was typically apportioned to several heirs (ALANEN, 1999: 440). Hence, the resulting farmland units were usually too small to be economically viable. The fragmentation of agricultural land was also a problem in Latvia and Lithuania (DAVIS, 1997).

The Agricultural Reform Act of 1992 formed the basis for the liquidation of collective farms and the establishment of new farms and agricultural enterprises (EMA, 2002). The aims of agricultural reform were to return assets and compensation to the lawful pre-World War II owners, but also to privatise the assets of collective farms (production plants, livestock, machinery, etc.). For both land and ownership reforms, agricultural reform became a complicated and contradictory process that led to much dispute.

The implementation of agricultural reform was decentralised. Reform plans were made at the local level and required the approval of both the members and employees of collective farms (ALANEN 1999: 441-442). Each collective farm established a local reform committee with an equal number of representatives from the collective farm, the local municipality and private farms. The committee formulated the content of a reform plan (MAIDE, 1995). The plan was approved by the municipal council and the legitimacy of transfers of various assets was confirmed by a lawyer. In the majority of cases, however, power remained firmly in the hands of the collective farm leadership (ALANEN, 1999).

All workers and members of the collective farms were entitled to ownership of its assets. Privatisation was usually performed through an auction, where one could pay with either privatisation vouchers, which had been distributed to collective farm members according to individual 'work shares' (based on workdays and salary), or with compensation vouchers, which were issued for the compensation of

property that had not been returned to former owners or heirs (ALANEN, 1999: 442).

The reform did not insist upon the liquidation of collective farms, but rather their liquidation as legal entities and reorganisation as market economy enterprises. The exact nature of the reorganisation and privatisation, and whether technological units remained intact and functional depended on the local reform plan and the committee. Usually the local reform committee and public opinion was inclined towards liquidation (KAUBI, 1999). TAMM (2001: 434) assesses that 2-3% of large-scale farms remained undivided. Several of Central Estonia's richest and largest collective farms were reorganised into partnerships which today remain among the largest agricultural enterprises in Estonia.

By the deadline of agricultural reform at the end of 1996, 361 former collective farms had been transformed into 710 co-operatives, 600 partnerships, 1,411 joint-stock companies and 13,513 private farms (TAMM, 2001: 435). While property reform, restitution and privatisation were nearly completed (EMA, 2003) by 1996, land reform was still progressing slowly.

The privatisation of land has been considered the least successful part of the reforms (JEFFRIES, 2004); the lack of connection between land and agricultural reforms is identified as one of the largest problems (IVASK, 1997; ALANEN, 1999; TAMM, 2001). The procedure of returning land was so complicated that it remained far behind the separation of assets (ALANEN, 1999: 442). Reforms created conflicts of interest between the owners of the production assets of limited companies, farms and the applicants for land restitution who had the right to restore their land to its previous boundaries (EMA, 2003: 51). The problem was that privatised producers could no longer continue the tenure of former collective farmland (TAMM, 2001). Uncertainties about land use rights hindered the development of agriculture by increasing the risk of investments and complicating credit opportunities, as agricultural enterprises lacked collateral in the form of land property (EMA, 2003).

New farms lacked the necessary equipment and financial capital (TAMM, 2001; SIRENDI, 2009; JULLINEN, 1997). The farmers who had privatised machinery from former collective farms had technology that had been designed for 1,200-1,500 hectare farms, and therefore was unsuitable for small farms (EMA, 2003). Many entrepreneurial, rural people migrated to towns and the adaption to the new economic situation in the agricultural sector during the 1990s was slow (IVASK, 1997). Quite often, new owners of land or production means did not have prior experience in or knowledge of farm management (UINT et al., 2005; SIRENDI, 2009), nor did they have an interest in continuing production; therefore, they sold the assets. JÖRGENSEN and STJERNSTRÖM (2008: 96) have pointed out that well-defined and secure property relations were not established at the same pace, as new owners began exploiting their land and forests. It is estimated that ¾ of returned and compensated assets left the agricultural sector in 1990s (EMA, 2003).

In 1991, the seemingly unlimited market for agricultural output disappeared with the collapse of the USSR (ALANEN, 1999; REILJAN, 2000). The inflation caused by the rapid deregulation of the market and the subsequent decline in consumer demand reduced demand for domestic foodstuff (ALANEN, 1999). From 1991-1994, the prices of inputs increased 17.5 times, while producer prices of agricultural products increased 11.5 times. Food retail prices increased 28.9 times after USSR consumer subsidies were terminated (OECD, 1996: 47). Therefore, the terms of trade for agricultural producers deteriorated and consumers were faced with much higher food prices. In 1992, all subsidies were terminated and prices liberalised. The OECD (1996) calculations on the percentage of producer support estimates (PSE) illustrate the drastic change from 1991-1992 (see table 2).

Table 2. PSE estimates in Estonia, EU, USA, Finland, Sweden in 1986-1994

	1986	1987	1988	1989	1990	1991	1992	1993	1994
Estonia	75	76	77	77	70	58	-76	-24	-4
EU-12	50	49	46	41	47	48	47	49	49
USA	35	32	23	20	23	22	22	23	20
Finland	65	69	70	68	71	72	66	64	69
Sweden	57	57	52	51	58	63	58	54	51

Source: OECD (1996)

The determination to follow a liberal economic policy resulted in a considerable inflow of foreign direct investment and a rapid transformation of the economy, but it had painful costs for the agrarian sector and, subsequently, rural development (UNWIN, 1998: 293). A liberal trade regime provided a competitive advantage to subsidised imports, which in turn caused a decline in agricultural prices during 1992-1994 by an average of ⅓ compared with the world markets (EMA, 2003). Agricultural producers had to compete with cheap foreign imports, yet foreign markets were protected with high trade barriers (LEETSAR, 1996; UNWIN, 1997; MAIDE, 1995).

The economic situation for farms and agricultural enterprises had not notably improved by the time the first aid schemes (income tax exemptions, and compensation of loan interest payments) were introduced in 1993. Also, the first programmes for agricultural and rural development were initiated in 1993 (EMA, 1999; JURJEV, 2003).

2.3 Changes from 1995-2001

In 1995, Estonia became a net importer of agricultural products. Although farmers demanded restrictions on imports, more subsidies, and solutions to the lagging land reform, their calls were not answered. Restrictions on food imports set by the Agricultural Market Regulation Act in 1995 were largely declarative and had no regulative effects (EMA, 2003). Many farms were not viable due to uneven conditions stemming from the competitive advantage of imported produce (MARRANDI, 2002).

However, together with Estonia's general development, the focus on agricultural policy increased. In 1996 and 1997, a fuel excise tax exemption and capital (investment) support were adopted. In 1998, compensation for loss of income due to unfavourable natural conditions was paid for the first time and direct payments for cereal and dairy producers were also implemented (EMA, 1999). In 1999, the scope

of direct payments was extended to raising calves, sheep, small-scale livestock and swine breeding herds. Aid schemes for young farmers, the start-up of mutual loan associations and crop insurance were also established. After establishing the legal framework from 1996-1998, import duties were established for the first time in 1999, together with the import licensing of agricultural and food products. At the same time, the border control for agricultural and food products was improved and programmes for monitoring food quality were initiated (EMA, 1999). Another setback for Estonian agriculture was the fallout from the 1998 financial and economic crisis in the world, and particularly in Russia.

At the end of the 1990s, Estonian agricultural policy began to be shaped by the goal of EU accession. In 1995, Estonia ratified the Europe Agreement and accepted the politics, purposes and measures of the Community. In 1997, pre-accession negotiations began. The first action plan towards joining the EU was adopted in 1996. A more profound "third" action plan for EU accession was approved in 1998. That plan also covered the need to harmonise legislation and policies, as well as establish administrative capabilities. In 1999, the Phare Special Preparatory Programme was launched, which laid the groundwork for the implementation of the Special Accession Programme for Agriculture and Rural Development (SAPARD) (EMA, 1999).

2.4 Changes from 2001-2008

The third phase of transition and developments in agricultural policy encompasses the characterised processes and impacts of EU pre-accession and EU membership. From 2001-2004, SAPARD payments amounted to 67.9 million EUR and ¾ of all the programme funds were used for investments in agricultural holdings, as well as processing agricultural and fishery products. The programme had a considerable impact on the establishment of the administration for the implementation of the CAP. The programme also contributed to the reduction of several bottlenecks in Estonian agriculture and the food industry through investments (EMA, 2007).

In 2003, a national milk quota was established as a transition instrument prior to EU accession. Since accession in 2004, Estonia has applied the CAP with exceptions that were made for new member states. The main differences from the EU-15 were that direct payments were implemented under the simplified area payments scheme (with gradually increasing subsidy levels) and the Rural Development Programme was only established for three years, i.e., 2004-2006. Market regulation mechanisms were implemented as in the EU-15. In 2007, the 2007-2013 Rural Development Programme was launched and by 2013 direct payment levels in EU-12 should reach the levels that the EU-15 member states had on 30th April 2004.

Since 2001, the upheaval in agricultural development can be associated with the implementation effects of programmes preceding EU accession (LÕO, 2005: 125). The opening of the EU market increased trade in all sectors of the economy. The growth of exports increased the demand for domestic raw materials, which had positive effects on producer prices and sales volume. However, the rising cost of agricultural raw materials and means of production resulted in increased production costs (UINT et al., 2005).

3. The performance of the agricultural sector during transition

3.1 Land use and arable production

During the reforms, agricultural land use declined significantly. From 1990-2008 the sown area of field crops declined by 322.9 thousand hectares (28.9%) (see table 3). The steepest decline occurred during the first sub-period (1990-1995). Of a total decrease in sown areas, the first 5-year period accounts for 82.3%. This period corresponds with the fundamental land, proprietorship and agricultural reforms and the disbandment of collective farms. As discussed in Section 2, the main reasons for excluding land from agricultural use relate to unclear landed property relations and the incapability and unwillingness of new landowners to begin agricultural production. At the same time, the steep decline in consumer demand, the loss of the export market to former USSR states and deteriorated terms of trade constituted a shock that led to a drastic decline in agricultural supply. From 1995-2001, the sown area declined by 12.8 thousand ha (1.5%) compared with 1995 and from 2001-2008 by 44.5 thousand ha (5.3%) compared to

Table 3. Sown area of field crops in 1990, 1995, 2001 and 2008

	1990, thousand ha	1995, thousand ha	Average annual change 1990-1995	2001, thousand ha	Average annual change 1995-2001	2008*, thousand ha	Average annual change 2001-2008
Cereals and legumes	397.1	308.0	-4.3%	277.8	-2.1%	313.9	1.8%
.. Barley	263.7	186.5	-5.9%	134.3	-6.8%	136.7	0.3%
.. Wheat	26.0	38.6	6.8%	59.6	9.1%	107.1	8.7%
.. Oats	33.4	38.5	2.4%	48.1	4.6%	34.3	-4.9%
.. Rye	65.9	32.0	-12.8%	20.9	-8.9%	21.4	0.3%
Industrial crops	3.2	7.3	14.7%	28.3	31.1%	78.5	15.7%
Vegetables and greens	5.2	4.6	-2.1%	3.3	-6.9%	2.4	-4.7%
Potatoes	45.5	36.9	-3.6%	22.1	-10.8%	8.7	-14.2%
Forage crops	665.3	493.9	-5.1%	506.4	0.5%	389.9	-3.8%
Total	1 116.3	850.7	-4.6%	837.9	-0.3%	793.4	-0.8%

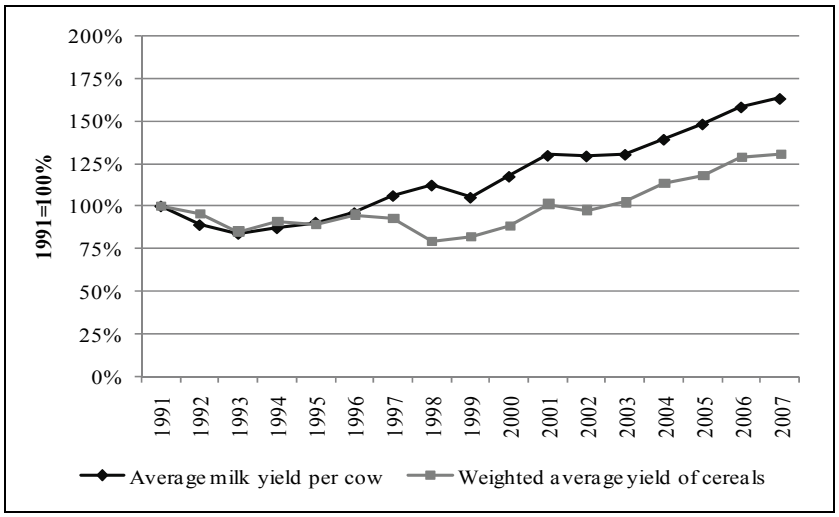
* Data from 2008 is preliminary.

Source: SOE (1998, 2002, 2006)

2001. However, the decline in agricultural land use should not only be associated with reforms. The abandonment of agricultural land has been more extensive in regions with low fertility soils (ASTOVER et al., 2006). Consequently, agricultural production from the lower fertility of previous collective farm soils was not competitive in the newly-introduced free market economy conditions.

During transition there have been changes in crop preferences, with potatoes declining the most (80.9%) (see table 3). A large decline has also taken place in vegetables and greens (53.8%), and forage crop production (41.4%). The decline in the area of cereals and legumes has been smaller than the average (21.0%). From 1990-2008, rapeseed has gained significant importance. The area of sown land for rapeseed has increased to 77.7 thousand ha, accounting for 9.8% of the total sown area (up from 0% in 1990).

Figure 1. Milk and cereals yield dynamics in 1991-2007



Source: SOE (2009)

The relative importance of certain cereal crops has also changed. The proportion of barley in the total sown area has decreased from 66.3% to 35.3% and the share of wheat has increased from 6.5% to 27.7%. An increase in the share of wheat can be explained by the average 14% premium in producer prices and 16% higher yields in comparison to barley (SOE, various issues). A decline in the relative importance of barley can also be explained by a decline in animal herds. Demand for barley as a feed grain has decreased significantly. Considering the transition from planned to market economy, we can also assume that the crop preferences prior to transition were not decided purely by economic reasoning.

A reduction in cereal production due to a decline in sown areas has been partly offset by increasing yields. The three-year weighted moving average yield of cereal crops was 2,633 hkg/ha in 2007, which is 30.7% higher than the corresponding figure in 1991 (see figure 1). However, the average yield from 1981-1985 was 26.1 kg/ha (see table 1), indicating a strong decline in cereal yields during transition. The three-year average cereal production in 2007 accounted for 94.6% of the 1991 level, suggesting that cereal production is approaching its pre-transition volume. Production figures were lowest in 1998, accounting for 65.3% of 1991 production levels. From 1998 onwards, yields have been increasing at a 5.7% per annum average. Improving productivity can partly be associated with direct payments introduced from 1998. Farmers had more funds to buy inputs (fertilisers and pesticides) for arable production. After EU accession (2003-2007), average yields have increased by 27.6% (6.3% per annum). A higher rate of yield increases since EU accession could be associated yet again with higher direct payments, which have enabled farmers to use more and better quality inputs. Also, land use relations are more defined, with 84% of the land registered in cadastre. Investment aid schemes applied since 2001 have allowed farmers to invest significantly (compared to 1990-2001) in up-to-date technology.

3.2 Animal production

In the USSR, Estonia was specialised in animal and dairy production. After the collapse of the USSR, animal production fell proportionately more than arable production (see table 4). From 1990-1995 the number of sheep and goats declined by 64.4%. The decline in dairy herds has been more steady compared to other herd classes. From 1990-1995 the number of dairy cows decreased by 34.0% (8.6% per annum). The average annual decline was steepest from 1990-1995. Between 2001 and 2008 one can see signs of recovery in pig, sheep and goat herds. The size of the pig herd increased by 5.5% (0.8% per annum), while sheep and goat herds have increased by 159.3% (12.7% per annum). An increase in sheep and goat herds could partly be explained by the establishment of direct payments for raising sheep and goats from 1999, but also by the low starting point in 1998.

Table 4. Size of animal herds in 1990, 1995, 2001 and 2008

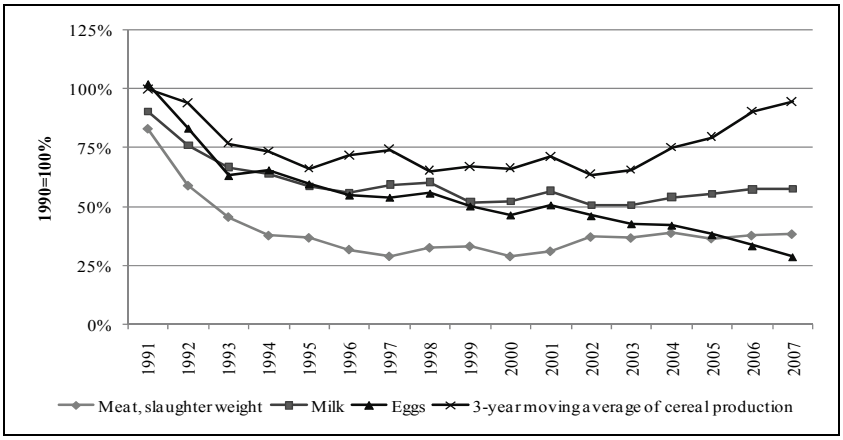
	1990, thousands	1995, thousands	Average annual change, 1990-1995	2001, thousands	Average annual change, 1995-2001	2008*, thousands	Average annual change, 2001-2008
Cattle	757.8	370.4	-15.4%	260.5	-6.0%	238.2	-1.3%
Dairy cows	280.7	185.4	-8.6%	128.6	-6.3%	100.5	-3.6%
Pigs	859.9	448.8	-13.9%	345	-4.5%	364.0	0.8%
Sheep and goats	139.8	49.8	-22.9%	32.4	-7.4%	84.0	12.7%
Poultry	6 536.5	2 911.3	-17.6%	2 294.9	-4.0%	1 743.3	-4.0%

* Data from 2008 is preliminary.

Source: SOE (1998, 2002, 2006)

In livestock production, there has not been a recovery similar in volume to that of cereal production (see figure 2). In 1991, 1,092.8 thousand tonnes of milk were produced. In 2007, the production volume accounted for just 57.3% of 1991 levels. There has been a slight increase in meat production since 2000 but in 2007 meat production accounted for 38.6% of the 1991 level. Egg production is still declining, and 2007 production accounted for 28.8% of the 1991 production level.

Figure 2. Changes in animal and cereal production in 1990-2007, 1990=100%



Source: SOE (2009)

On the other hand, productivity has increased more in livestock than in crop production. The average yield of dairy cows has steadily increased since 1993 (see figure 1). From 1991-1993 there was a 16.3% decline in average milk yield. From 1993-2007, the average yield of dairy cows increased by 95.2% at an average annual rate of 4.9%. In 2007, the average milk yield was 6,484 kg/cow (SOE), while the EU average was 6,013 kg/cow (FAOSTAT, 2009).

3.3 Structural changes

Breaking up the collective farms caused a shock in Estonian farming structures. Resources and production facilities that had been previously concentrated in large holdings were now scattered among relatively small private farms. The establishment of private farms began in 1989. By the end of 1989, 828 private farms were established with an average area of 25 ha (see table 5) (VIRMA, 2004).

From 1989-2000 the number of private farms increased rapidly. The number of agricultural enterprises increased from 1990-1993 mainly due to privatisation and the break up of collective farms. From 1993-1999, the number of agricultural enterprises was declining due to the liquidation of non-competitive agricultural enterprises (former collective farms). From 2000-2007, the number of legal persons in the agricultural sector increased. These were mainly private farms reorganised as private limited companies (limited liability instead of full liability of the owner in the case of natural persons). From 2000-2007 there was a sharp decline in the number of farms owned by natural persons, but this is mainly due to how farms are registered. Natural persons initially registered as farms have unregistered themselves because they are not selling agricultural produce. According to SOE, there were 7,302 agricultural producer holdings whose economic size was at least 2 ESU (European Size Units) in 2007. With reservations, these holdings could be counted as acting commercial farmers in Estonia.

Farms established from 1989-1992 received support from the government and collective farms in the form of subsidised inputs and services (ALANEN, 2004; OECD, 1996). This encouraged people to establish small family farms and also stimulated naïve expectations about the viability of small farms in the market economy (TAMM, 2001: 415). KELAM (1993: 39) shows that the main motives for establishing farms were the possibility of working according to one's desire and the wish to return to a traditional lifestyle. New farmers were optimistic about the future and considered the economic situation favourable. However, by 1992, the economic situation of farmers had considerably worsened (KELAM, 1993: 44).

Table 5. Number of collective farms, agricultural enterprises, private farms, natural persons and legal persons*

	Collective farms		Agricultural enterprises	Private farms		Natural persons		Legal persons	
Year	Number	Average area, ha	Number	Number	Average area, ha	Number	Average area, ha	Number	Average area, ha
1985	302	8 369		17	0				
1989	326	7 628		828	25				
1991			396	7 029	25				
1993			1 013	10 153	25				
1995			873	19 767	21				
1997			803	34 671	22				
1999			680	51 081	21				
2001						54 895	9.9	853	384.3
2003						36 076	12.9	783	419.8
2005						26 868	17.2	879	418.0
2007						21 889	21.5	1 447	302.1

* Until 2001, the official statistical units were agricultural enterprises and private farms. Since 2001, the official statistics use concepts of agricultural holdings, which are classified into natural persons and legal persons.

Sources: VIRMA (2004); SOE (1999); SOE (2009)

Table 6. The structure of dairy herds 1990-2008

	Herd size classes, number of dairy cows per heard							
	1…10	11...50	51...100	101...300	301...600	601...900	901...1,200	>1,200
1990				24	107	114	54	34
1992				99	158	83	27	16
1993	2 815	291	161	342	120	27	6	5
1995	2 128	291	127	278	74	14	5	3
1999	1 832	682	116	188	60	12	4	3
2003	1 727	637	103	164	60	13	4	4
2007	489	465	100	135	63	17	4	3

Source: EARC (2009)

The structural break in the dairy sector is perhaps more pronounced than in farming in general. Until 1993, there were no farms with less than 101 cows and production was concentrated in large holdings (see table 6). In 1993 the situation changed drastically – there were 2,815 herds with less than 11 cows and there was a large decline in the number of larger dairy herds. However, since 1995, the number of herds in size classes 601-900, 901-1200, and over 1200 cows has been relatively stable, indicating that these are mainly former collective farms that were privatised and did not collapse during transition. On the other hand, since 2000 there has been a rapid decline in herds with between 1-10 and 11-50 dairy cows. Therefore, it is evident that the structural break at the beginning of the 1990s created a number of small farms, and during transition a vast majority of the small dairy farms were not viable.

Table 7. Income of farms by size classes and farm types in 2007

	Farm size class, ha			
	0-40	40.01-100	100.01-400	400.01-…
Farm net value added per AWU				
.. arable holdings	5 012	6 865	30 173	46 775
.. dairy holdings	3 366	7 762	13 509	15 066
.. mixed holdings	3 302	5 541	17 214	20 395
Farm net value added per ha				
.. arable holdings	261	183	284	314
.. dairy holdings	188	207	322	412
.. mixed holdings	240	144	228	372
Family farm income				
.. arable holdings	6 466	9 410	49 922	177 654
.. dairy holdings	5 200	11 858	41 625	140 485
.. mixed holdings	4 515	8 116	34 265	227 137

Source: EMA (2008)

The average annual wage in Estonia was 8,700 Euros in 2007. In the agricultural sector, the average annual wage was 6,600 Euros (SOE, 2009). If average wages are compared to family farm incomes in 2007 (see table 7), it is evident that farms of less than 40 ha do not provide sufficient income for farm families. There is a positive correlation between farm size and farm net value added per hectare and per annual working unit.

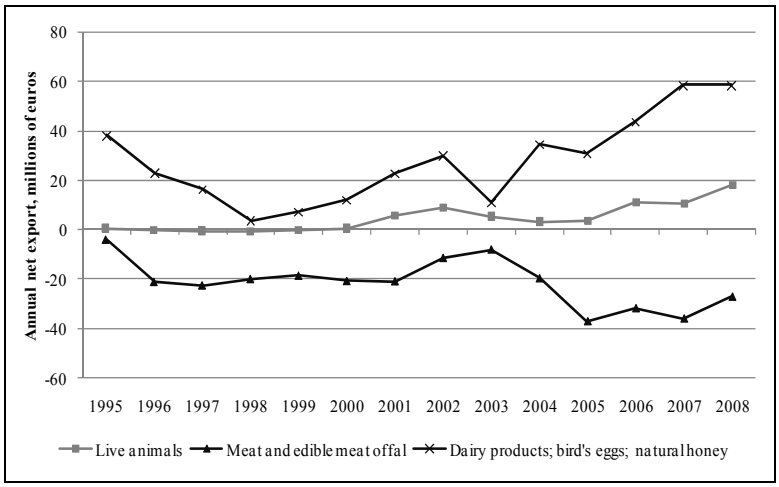
3.4 Trade patterns

During transition, Estonia maintained its position as a net exporter of dairy products and live animals (see figure 3). At the same time, Estonia has become a net importer of meat products. Since EU accession, the net export of dairy products and live animals has increased, indicating the positive effects of accession. At the same time, the net import of meat has also increased, indicating lower competitiveness in the meat sector compared to the dairy sector.

With regard to plant products, Estonia has been a net importer of fruits and vegetables. As purchasing power has increased, the net import balance has also increased steadily (see figure 4). An increase in cereals and oilseed production since EU accession has led Estonia to become a net exporter of cereals and oilseeds from 2005-2008.

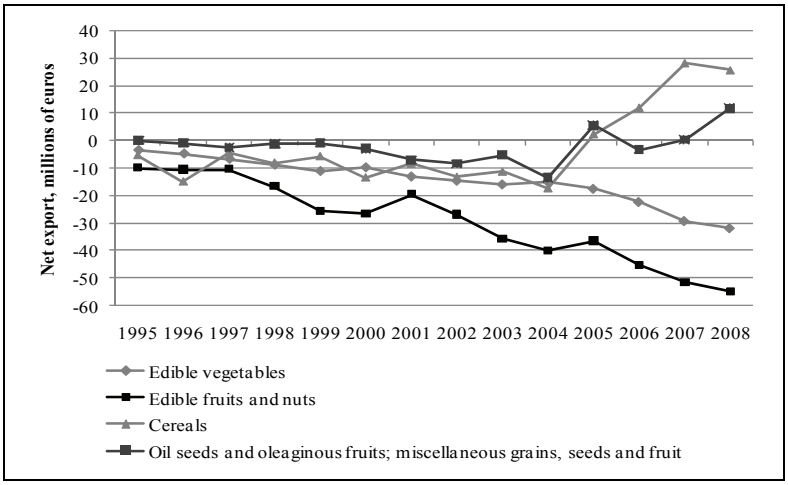
During transition, Estonia's main trading partners for agricultural produce have also changed. At the beginning of the 1990s, the Russian Federation continued to be an important export market. However, trade between Estonia and the Russian Federation has always been strongly influenced by political tensions. Therefore, the importance of the Russian Federation as an export market fell dramatically between 1995-2003, and trading with the EU increased markedly,

Figure 3. Net export of animal products (Section I of HS), 1995-2008, millions of Euros



Source: SOE (2009)

Figure 4. Net export of plant products (Section II of HS), 1995-2008, millions of Euros



Source: SOE (2009)

with The Netherlands leading the way. EU accession re-opened the Russian Federation as a market for Estonian producers. Since accession, exports have been directed away from The Netherlands and towards the Russian Federation (see table 8). There has also been a visible increase in the importance of the Scandinavian and Baltic countries as export markets. Indeed, almost ⅔ of Estonian agricultural produce exports go to neighbouring countries' markets.

The importance of the Russian Federation for the import of agricultural produce has also decreased significantly. With regard to imports, integration with the Baltic and Scandinavian markets is evident. Germany and the Netherlands have been significant import countries throughout transition.

Table 8. The main trading partners of agricultural commodities (HS Sections I and II) in 1995, 1999, 2003 and 2008, % of trade volumes

	1995	1999	2003	2008
Share in exports, %				
The Netherlands	27.2	19.0	21.7	5.8
Russian Federation	23.4	9.6	4.8	12.2
Baltic countries	7.4	25.3	25.3	25.8
Scandinavian countries	11.4	15.3	14.3	26.3
Germany	3.3	5.6	11.7	8.0
Share in imports, %				
The Netherlands	15.2	15.0	15.3	12.5
Russian Federation	9.0	6.6	5.2	1.1
Baltic countries	7.5	9.3	16.9	21.8
Scandinavian countries	36.9	36.6	24.8	32.3
Germany	7.3	8.5	4.9	7.8

Source: SOE (2009)

4. Conclusion

Based on the information regarding institutional reforms and production statistics, three sub-periods can be outlined within the 20 years of Estonian transition. From 1988-1995 land, property, and agricultural reforms were implemented to form the new structure of agricultural production based on private farms and privatised agricultural enterprises. The ideological goal of these reforms was to return to the structure of small family farms that prevailed before World War II. In reality, the majority of re-established farms proved to be nonviable and ill-equipped for the realities of the liberal market economy. In addition, the liberal trade policy gave a competitive advantage to subsidised imports from the EU. The fundamental changes were accompanied by a dramatic decline in the sown area of field crops and the volume of agricultural production.

The idealisation of family farming could be cited as a hindrance that led to the separation of most of the collective farms (IVASK, 1997). The primary carrier of the ideologically rigid family farm project was the narrow stratum of nationalist intellectuals and new government functionaries with an urban background. The ideology had a great effect on the policies of the government, although the prospects of agricultural production itself took a drastic turn for the worse immediately after the Baltic republics had reinstated their independence in 1991 (ALANEN, 1999: 433).

The Estonian agricultural decline in the 1990s manifested itself in the widespread neglect of arable land; the great problems faced by post-reform agricultural enterprises, including numerous closures and bankruptcies; and the impoverishment of farmers and the rural population (ALANEN, 1999; ALANEN et al., 2001; ALANEN, 2004; UNWIN, 1998; SIRENDI, 2009). Slow land reform and incoherent property relations, the unwillingness and incapability of new farmers to manage farms, and the uneconomic land use of previous collective farms were the main reasons behind the neglect of arable land. Agriculture could not offer enough employment or primary income to the majority of producers (LÕO, 2005).

From 1995-2001, the decline in production began to level out, the number of privatised agricultural enterprises declined and the number of private farms increased. However, many of the private farms are just households where some production for family purposes is maintained. During this period, agricultural policy became more relevant to the political agenda and the first support schemes for agricultural producers were implemented. Due to limited resources in the governmental budget, these mechanisms did not have particularly significant effects on agricultural growth. In 1996, Estonia set the goal of attaining EU membership. Therefore, the harmonisation of Estonia's institutional basis with EU institutions was initiated.

In 2001, the first positive effects of the impending EU accession could be detected. The harmonisation of institutions and law with the CAP has contributed to more systemic agricultural policy in Estonia. Implementing the SAPARD pre-accession programme considerably improved the deficit of investments that emerged in the 1990s. Since EU accession, trading activity has significantly increased. Cereal production has increased since 2005 and is approaching the level of 1990. This has led to the net export of cereals and oilseeds in 2005-2008.

As the application of the CAP in the EU-12 and EU-15 is somewhat different and will remain so until 2013, it is evident that the transition and harmonisation of institutional settings in agriculture and the adaptation of EU-12 agricultural sectors with the EU common market will continue during the next EU budget period of 2014-2020. In the EU-12, one of the key questions is whether a new generation of farmers will emerge to take over the farms established in the beginning of 1990s, as the founders of these farms will reach retirement age in the coming decade.

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