

IS THE TURKISH AGRI-FOOD SECTOR READY FOR EU ENTRY?

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Abstract

Joining the EU's single market would subject the Turkish food supply chain to competition from mature industries and highly efficient, well-organised companies in the rest of the Union. To be ready for this competition, the Turkish agri-food chain has to tackle a number of serious bottlenecks, requiring modernisation and restructuring of the farm and food sector, and a more efficient marketing system, which provides for quality improvement incentives and price transparency. The rise of modern retail chains in the country and the inflow of FDI are two important factors that help preparing the Turkish food supply chain for the competitive pressures implied by the EU single market.

JEL classification: F15; P27; Q13

Keywords: EU integration, agri-food chain, market structure and performance, Turkey

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1. Introduction

In October 2005 the European Union will start talks with Turkey about EU membership. Joining the Union will imply increased competition for the Turkish agri-food sector. During the pre-accession period the Turkish agri-food supply chain has to strengthen its capacity to cope with competitive pressure and market forces implied by the EU single market. This paper analyses the structure and performance of the Turkish agri-food chain and identifies the main bottlenecks for improved competitiveness.

During the 1960s and 1970s the state had a major influence on the economic process through its central planning philosophy and state-owned enterprises. In the early 1980s Turkey made major economic changes and adopted a more market-oriented economic policy, paving the way for more private initiatives and ownership in the food industry. However, state-ownership is still prevalent in the agri-food chain, while until very recently the organisation of marketing was strongly government controlled. Structural features of the agri-food chain, including the vertical coordination between market actors affect the chain's performance and competitive strength. The present conditions in the Turkish food supply chain determine the implications of joining the EU for its development.

The structure of the paper is as follows. Sections 2 to 5 analyses the structure and performance of all components of the agribusiness cluster, including the upstream and downstream sectors, the farm sector, as well as the wholesale and retail sector. Structural features of the Turkish agri-food chain have implications for institutional arrangements in the fields of agricultural production and trade. Section 6 characterises the linkages between farmers, processors, traders and retail in Turkey. Section 7 draws attention to a number of implications of integrating the Turkish agri-food chain more closely with that of Western Europe. A final section wraps up with concluding remarks.

2. Structural features of the upstream industries

This section presents the structural features of industries delivering to the agricultural sector: agro-chemicals, feed concentrates, machinery and seeds. In addition, financial services delivered to the agriculture and food sector are discussed.

2.1 Agro-chemicals, animal feed and the food processing machinery industries

A small number of mainly private companies dominate the Turkish fertiliser industry (table 1). Total fertiliser production capacity is 5.3 million tons/year, but total production is 3-3.5 million tons/year, implying a two-thirds utilisation of the national production capacity. Domestic demand has been around 5 million tons/year in recent years, implying that imports amount to 1.5-2 million tons/year. The performance of the Turkish fertiliser industry went down after 2001 due to increasing production costs and a drop in demand. The industry depends heavily on imported materials (natural gas, phosphate rock) and on intermediates (ammonia, phosphoric acid). Prices of these imported raw materials and intermediates rose sharply, due to the strong decline of the currency in 2001 and 2002. Furthermore, the industry fertiliser subsidy was phased out in 2001 (see also section 2.3). As a large part of the subsidy went to the fertiliser processors, this meant a loss for the industry. Furthermore, domestic demand decreased by 25 per cent as prices went up. As a result of these developments, Lundell et al. (2004:18-19) report a significant decline of the capacity utilisation and increasing concentration in the Turkish fertiliser sector.

Two fertiliser companies have 50 per cent of their capital in foreign ownership (Turkish Treasury, 2004). The state-owned companies TÜGSAŞ and IGSAŞ, of which TÜGSAŞ is the larger, together account for 40 per cent of the total national fertiliser production capacity and 20 per cent of total sales (SPO, 2004). According to the government's privatisation programme, TÜGSAŞ will be privatised before the end of 2005.

The domestic production of pesticides and other agro-chemicals (excluding fertilisers) is in the hands of 15 companies. Despite this substantial number, the four biggest companies dominate the industry, with a market share of 85 per cent (see table 1). The agro-chemical sector suffers from significant over-capacity, with production capacity 50 per cent in recent years (SPO, 2004).

In other agro-chemical markets also, a small number of firms dominate domestic market sales. Whether these large firms have market power is difficult to say without having company- and sector-specific information on, for instance, price margins. Such information is not available. Yet it seems that the import regimes for these inputs allow foreign suppliers to come in on competitive terms. This would imply a competitive market without price-setting dominance by any individual company with activities in these input markets.

Table 1. Concentration of Turkish agro-food upstream industries

Activity code (ISIC Rev 3)	Name of the manufacture activity	No. of companies	CR4 ¹⁾	CR8
2412	Fertilizers and nitrogen compounds	14	61.5	82.1
2421	Pesticides and other agro-chemical products	15	83.0	95.8
1533	Prepared animal feeds	130	33.0	44.6
2921	Agricultural and forestry machinery	83	79.2	84.7
2925	Machinery for food, beverage and tobacco processing	82	31.1	45.6

Note 1) Concentration rates CR4 and CR8 are measured as the ratio of the sales of 4, respectively 8 of the largest companies to the total domestic sales of the branch of industry. Source: SIS, 2004.

Since the government sold the state-owned feed mills in 1994, the feed industry has been privately owned. The number of feed mills increased to over 350 in the mid-1990s (Kindap, 1998). Apparently, there has been a rather rapid process of concentration in recent years as according to SIS data, the animal feed industry had 130 companies in 2001 (table 1). Still, there is much scope for further concentration as most of the feed mills have little production capacity: the 8 largest feed mills account for 45% of total compound feed production in Turkey.

The food processing machinery and equipment manufacturers in Turkey range from small to medium-sized companies mainly located in the bigger cities (Royal Netherlands Embassy, 2004a). The line of products manufactured by these companies varies from highly automated equipment to manual and basic models. The Turkish food processing machinery industry is able to produce every kind of machinery and equipment necessary for the local food processing industry. Manufacturing firms in this field are also serving export markets in the Middle East, Balkans and Central Asia.

2.2 Seed industry

Presently, 93 private companies and 31 public sector entities produce, import, mediate or distribute seeds for agriculture and horticulture (Royal Netherlands Embassy, 2004b). The private companies established after the economic reforms of the 1980s formed the Turkish Seed Industry Association (TÜR-K-TED). TÜR-K-TED is a lobby group that also provides the national seed sector services aimed at upgrading knowledge and skills of its members and improving market transparency by providing statistical data on variety improvement, seed production, quality, distribution, trade, etc.

The share of the private sector in seed production is increasing, although publicly-owned enterprises still dominate the production of seeds for wheat, barley, cotton and fodder crops (Royal Netherlands Embassy, 2004b). For these products, the General Directorate of Agricultural Enterprises (TIGEM – State Farms) has been the major public organisation dealing with seed propagation and distribution to farmers. Turkish farmers are increasingly using certified seeds, although in certain subsectors (e.g. barley, potatoes) the proportion of certified seeds used is still particularly low. Approximately 40 per cent of seed used each year is produced by the formal seed industry. The high percentage of uncertified seed purchased and/or farm saved seed generally affects the quality of the produce negatively.

Seed imports are allowed only for companies that produce, procure and distribute seeds in Turkey. The main goal behind this policy is to encourage both local and foreign investors to invest in Turkey's seed industry. Presently, 13 foreign seed companies are active in Turkey (Royal Netherlands Embassy, 2004b:40). However, the import procedures are complicated and time-consuming. Moreover, importing companies face serious financial risks if their varieties are not included in the government's Annual Seed Programme.

2.3 *Financing the agriculture and food sector*

The Agricultural Bank of Turkey was established in 1888 and is the oldest bank in Turkey. Moreover, it is the largest bank in the country, extending more than 90 per cent of agricultural credit. Since 2000, the Agricultural Bank has operated as a joint stock company with all shares belonging to the Turkish Treasury. The Bank's main sources of finance consist of (interest-bearing) deposits and borrowing from the central bank. Before the agricultural policy reforms started in 2001, the Agricultural Bank was also used as financial intermediary in government support policies, extending short-term loans to agricultural sales co-operatives for commodity price support (see also section 5.1). The agricultural policy reforms had important implications for the sector's access to credit.

The Agricultural Bank provides loans to farmers through several channels. One channel is the Agricultural Credit Co-operatives (ACCs). Almost every village in Turkey is served by an ACC. Until 2002, ACC farmer members had the right to use credit up to a pre-defined ceiling (TL 2.25 billion in 2002, being roughly USD 1,500) uniform for all members. Agricultural credit was given 80 per cent in kind, and mostly as fertiliser.² The Bank also provides loans to individual farmers directly. These loans are mainly of a medium- to long-term nature. Although its lending is in principle (by law) targeted at small farms, the Bank's loan requirements restrict these credits to farmers who own agricultural land or have other properties needed as collateral. Land titles are not always clearly defined (see Lundell et al., 2004:57), which potentially hinders farmers' access to credits. In practice, the Bank's direct lending activities have focused mainly on larger farms and state-owned enterprises, while ACCs serves smaller-scale farmers. The Agricultural Bank also provides loans to upstream and downstream enterprises in the agri-food sector.

Since 2001, credit provision to the agricultural sector has declined significantly. As part of the 2001 government's agricultural reform programme, credit subsidies were phased out in 2002. Furthermore, in 2002, the Treasury ceased supplying funds to the Agricultural Bank and the ACC system. In addition, the new banking law prevents the Bank from providing funds to those ACCs with outstanding debts. Lundell et al. (2004) estimate that this will cut off 40 per cent of all ACCs from Agricultural Bank financing. Since flows of credit resources from the Treasury have discontinued, the two main agricultural sector lenders, the Bank and the ACCs, have reduced their loan portfolios by about three-fold from the peak level of USD 7.3 billion in 1997 to reach USD 2-3 billion in recent years (of which half is renewed every year). This amount is estimated at one-third of all credit used by farmers (Lundell et al., 2004:21). Farmers also obtain credit from merchants, wealthy farmers and moneylenders. However, compared to formal loans provided by the Bank and ACCs, the conditions of these informal loans are much worse, as these sources offer credits often at exorbitant interest rates (interest rates on the Bank's agricultural loans were 39 per cent in 2003 (TCZB, 2004). These changes resulted in reduced access to credits by farmers and this will have a serious negative impact on the possibilities for the sector restructuring and modernisation.

3. **The structure of primary agriculture**

Farms in Turkey are generally family-owned, small and fragmented. The 2001 agricultural census recorded 3 million farms, against 4 million in 1991 (table 3). The average cultivated area per holding increased during the 1990s to reach about 6 ha in 2001, which is about one third the average size (19 ha) in the EU in 1999/2000. About 65 per cent of agricultural holdings are smaller than 5 ha. The majority of these holdings are vegetable producers, which typically cultivate an area of 0.2-1 ha (Royal Netherlands Embassy, 2004b:20). 83 per cent of holdings (41 per cent of total agricultural land) were smaller than 10 ha. Fifteen per cent of holdings were from 10 to 50 ha (nearly half the cultivated land). A relatively high number of more specialised farms are located in the Aegean and Mediterranean regions. These two coastal regions focus largely on fruit and vegetable production

² The extensive ACC network represents 38% of registered fertiliser distributors reaching a market share of 30% in 2000. However, due to agricultural policy reforms and the loss of preferential treatment (access to concessionary funds for credits) by the government, ACCs' market share dropped to 12% in 2002 (Lundell et al., 2004: 19).

while the predominantly rural and mountainous areas in the centre and east part of the country specialise in livestock and animal products. The share of irrigated land increased from 14 per cent in 1991 to 20 per cent in 2001 and is much higher in the west than elsewhere in Turkey. A third of the holdings smaller than 1 ha are irrigated (Cakmak, 2004). These holdings produce fruit and vegetables.

Table 3. Size distribution of land, 1991 and 2001 (per cent)

Size of holdings (ha)	1991		2001	
	Farm HH's	Cultivated area	Farm HH's	Cultivated area
No Land	2.50		1.77	
< 0.5	6.19	0.29	5.78	0.26
0.5 - 0.9	9.37	1.08	9.44	1.02
1 - 1.9	18.49	4.28	17.54	3.82
2 - 4.9	31.33	16.28	30.91	15.48
5 - 9.9	17.53	19.80	18.21	20.41
10 - 19.9	9.42	21.21	10.64	24.05
20 - 49.9	4.27	20.23	5.00	23.69
50 - 99.9	0.59	6.49	0.57	6.32
100 - 249.9	0.25	5.63	0.14	3.07
250 - 499.9	0.05	2.88	0.01	0.40
500 +	0.01	1.83	0.00	1.50
Total	100.00	100.00	100.00	100.00
Gini Coefficient ¹⁾		0.60		0.59
	(1000 HH's)	(1000 ha)	(1000 HH's)	(1000 ha)
Village Head Census	4,092	21,103	3,698	22,156
HH Survey	4,068	21,449	3,076	17,164

Note 1) Calculated by the author of the table from grouped data. Source: Cakmak, 2004, Table 2.

Subsistence and semi-subsistence farming is an important characteristic of Turkish agriculture, which is similar to the situation in some regions in the new member states of the EU-25 (e.g. Poland), as well as in Bulgaria and Romania.³ This type of farm is characterised by very low productivity, high hidden unemployment and low competitiveness. These farms, however, are crucial for providing income security and livelihood to millions of the rural population in Turkey. Subsistence farming in Turkey, though, should not be confused with small-scale farming: the agricultural sector is characterised by a relative large horticultural sub-sector, where production for the market on relatively small plots can be profitable.

4. Trends in the food industry structure and performance

4.1 Importance of the food industry

According to 2002 data, the Turkish food industry contributes around 5 per cent of GNP and accounts for 20 per cent of total production of the manufacturing sector. The Turkish food industry has retained a stable share in total manufacturing production over the last few years, from 20.1 per cent in 2000 to 20.9 per cent in 2002. During the 1990s this share was increasing, with the production of processed foods growing by about five per cent per year. From 1990 to 2000, the share of the food industry in total manufacturing industry value added increased from 13 to 16 per cent (Rehber, 2004:87 and TÜSIAD, 2003). However the share in manufacturing industry export has declined from 6 per cent in 2000 to 4.9 per cent in 2002 (SPO, 2004).

The food sector employs more than 100,000 registered workers and technical staff in more than 28,000 enterprises (SPO, 2004). Most of them are small to medium-sized enterprises. The State Planning Organisation estimates that around 10 per cent of these enterprises are relatively modern and

³ Compared to Bulgaria and Romania, there seem to be more middle class farmers in Turkey. Middle class farm households have generally better development perspectives than the very small-scale farms.

large. USDA (2004) reports that only one out of six firms uses modern technology for production and quality control. As a result, one may expect that only a small proportion of firms meet the EU quality norms. Azabagaoglu et al. (2003), for instance, estimate that only 6 to 7 per cent of Turkish total milk supply is processed by dairies meeting EU norms and having ISO 9000 quality assurance certificates.

4.2 Branch composition

The distribution of the number of enterprises among sub-sectors of food industry has not changed much since 1990. In 2000, the cereal and cereal-based sub-sector accounted for 65 per cent of the total number of food enterprises. Processing enterprises in the fruit and vegetable sector were in second place with 11.5 per cent, followed by the dairy enterprises (see table 4).⁴ The other categories identified in the table account for a lower percentage of the total number of enterprises. Sub-sectors with the highest production values are cereals, meat, dairy and sugar processing.

4.3 Ownership in the food industry

After the economic policy changes of the early 1980s, economic liberalisation stimulated the private sector, and both domestic and foreign investments took over existing state enterprises and established new companies. Today, Turkey's food sector is dominated by the private sector, but in a few branches of the food industry, such as the sugar, meat and tea industries, there are still state-owned enterprises. These state enterprises very much dominate the branch, although they do not have monopoly power as private firms coexist at the production and marketing stages.

Table 4. Key figures on the food industry structure

	Share in total number of enterprises, 2000, in %	Share in total food production value, 2002, in %
Meat and meat products	n.a.	13.8
Milk and milk products	11	14.4
Processed fishery products	n.a.	1.5
Cereal and starch products	65	40.7
Processed fruits & vegetables	11.5	7.2
Vegetable oils and oil products	3.5	6.1
Sugar, confectionary and all others	3	12.4
Others	n.a.	4.1
Total	100	100

Source: State Planning Organisation, 2004

In the mid-1990s, state-owned factories in the milk and feed industries, and a number of meat combines, were privatised. As part of the general economic reform programme, the Government intends to privatise the surviving state enterprises in due time. For instance, for 2004 the remaining meat processing units from EBK Meat and Fish Production Inc. are scheduled to be privatised. EBK was a major player in the market in the past, but now handles less than three per cent of production (Sarigedik, 2004). Also in the sugar sector, privatisation of state processing units is foreseen. However, the stage this process has reached is not so clear: while the State Planning Organisation reports that the privatisation of 26 state-owned sugar factories is already underway (SPO, 2004), the responsible Privatisation Administration reports that there is not yet a schedule for privatisation of TÜRKŞEKER (Turkish Sugar Company) (Privatisation Administration, 2004).

Government monopolies existed for decades in the beverage and tobacco industry, but this situation has changed now. The government monopoly of the production of alcoholic beverages (wine, beer distilled beverages) ended in 2003. Beer and wine are mainly manufactured by the private

⁴ In contrast to the SPO source used for table 4 the Royal Netherlands Embassy states that 18 per cent of all food processing industries is active in the milk and dairy industry. The source of this information is, however, not mentioned (Royal Netherlands Embassy Ankara, 2004c).

sector (SPO, 2004). The beer industry consists of two private firms and one (relatively small) state company (TEKEL). As of mid 2003, there were 10 foreign-owned companies in the beverage (alcohol and non-alcohol) industry, with average 50 per cent foreign capital.

In the tobacco industry, the state monopoly was abolished already in 1991. Soon afterwards, some foreign tobacco manufacturers entered the Turkish market. For example, Philsa, the Corporation of Phillip Morris and Sabancı Holding Company, and the RJ Reynolds started to manufacture cigarettes in 1993. By 2003, there were 12 foreign companies in the tobacco industry, with 93 per cent foreign capital (Turkish Treasury, 2004). TEKEL, the state company, is the only manufacturer of oriental cigarettes that are made from 100 per cent oriental tobacco produced domestically. However, TEKEL competes with private firms in the manufacturing of blended cigarettes. Domestic production of non-filtered cigarettes, which are produced only by TEKEL, is small. Cigarette production is carried out in 9 factories, 6 of which belong to TEKEL. Unlike government's plans, the privatisation of TEKEL's activities in the tobacco industry had not been completed in 2004.

Although the privatisation process (combined with market size and growth prospects) offers many opportunities to foreign investors, Turkey has not attracted high inflows of foreign investment. Reasons for this low performance include structural barriers, heavy bureaucratic requirements, macroeconomic instability corruption and political instability (Tüsiad and Yased, 2004). In the 1990s Turkey was not able to attract more than USD 1 billion on average annually, of which only a small percentage has been invested in the food industry (Loewendahl and Ertugal-Loewendahl, 2001:5).⁵ In 2003, there were 155 foreign-owned companies in the food manufacturing industry, with an average of 64 per cent foreign capital. This accounted for almost five per cent of total foreign direct investment (Turkish Treasury, 2004). Foreign investment has relatively large shares in vegetable oils and fats, candy and chewing gum, dairy products, confectionary and artificial sweetener industries. As reported above, foreign investors have also found the beverage and tobacco industry attractive.

4.4 Concentration in the food industry

The concentration of companies in the food industry is highest in the starch production and in several beverage branches (beer, wine, spirits) (see table 5). In these branches, the four biggest companies have a market share of 70 per cent and more. However, it should be noted that also in other branches of the food industry a small number of companies have a significant market share. In the fish, tobacco, cereal processing and sugar confectionery branches, the four largest companies have more than 60 per cent market share. Also in branches with relatively high numbers of enterprises, some companies dominate the branch. For example, the dairy industry consists of over 100 enterprises, yet the four largest dairies have a 50 per cent market share. SIS counts almost 400 manufacturers of bakery products and the largest four have a market share of one-third.

These numbers indicate that the food industry (including beverages and tobacco) is fragmented in many industry branches, yet that in some branches a few companies dominate the market while in other branches the largest four companies have a significant market share.⁶ Whether the relatively high concentration rate in certain branches has had implications for efficiency and/or price formation is not known.

4.5 Performance of the food industry

Data on turnover, value added and profits of the food sector are hard to find. SPO (2004) reports that while the food industry accounts for 20 per cent of total production in the manufacturing sector, its share in value added is 16 per cent. To the author's knowledge, details providing insights into

⁵ According to generally accepted international standards in FDI inflow ranking of 2000, the minimal annual FDI attraction potential of Turkey would have been USD 35 billion (UNCTAD, 2002). This potential is almost equal to FDI inflows in Brazil in 2000.

⁶ Note that SPO reports 28,000 enterprises in the food industry, of which very many belong to the small-scale sized manufacturing (SPO, 2004). SIS, however, reports about only 1,569 companies in the food (related) industry. The reason might be that SIS reports only companies with a certain minimum number of employees. However, the criteria for selecting the companies is not explained in the statistics provided at the SIS website.

profitability of specific sub-branches are not systematically published by accessible public sources, and one has to rely on indirect indicators.⁷

Table 5. Concentration in the Turkish agri-food industry, 2001¹⁾

Activity code (ISIC Rev 3)	Name of the manufacture activity	No. of companies	CR4	CR8
1532	Starches and starch products	6	95.8	100
1553	Malt liquors and malt	8	77.2	100
1554	Soft drinks and mineral waters	54	75.0	84.7
1552	Wines	13	73.5	91.5
1551	Distilling, rectifying and blending of spirits, etc.	13	71.3	95.5
1512	Processing and preserving of fish and fish products	16	68.1	84.6
1600	Tobacco products	25	66.7	88.5
1544	Macaroni, noodles, couscous and similar farinaceous products	19	61.6	81.8
1543	Cocoa, chocolate and sugar confectionery	85	61.4	82.1
1520	Dairy products	114	51.8	66.1
1549	Other food products n.e.c.	113	38.3	51.8
1542	Sugar	39	35.9	53.4
1541	Bakery products	372	35.5	54.5
1514	Vegetable and animal oils and fats	95	35.1	48.9
1511	Production, processing and preserving of meat and meat products	99	34.7	50.3
1513	Processing and preserving of fruit and vegetables	234	20.0	29.4
1531	Grain mill products	264	18.1	27.5

Note 1) Concentration rates CR4 and CR8 are measured as the ratio of the sales of 4, respectively 8 of the largest companies to the total domestic sales of the branch of industry. Source: SIS, 2004.

The degree of capacity utilisation in food sub-sectors could be used as an indication of the rate of profitability at sub-sector level. According to SPO (2004), capacity utilisation in most of the sub-sectors of food industry has been at approximately 50 per cent in the years 2001-2, while the utilisation rate was 70 per cent on average between 1995-1999.⁸ The economic crisis in Turkey had a significant downward impact on the utilisation rate in the food industry. Furthermore, the reduction of government support in the form of administered prices and subsidies may also have contributed to the decline in the profitability and subsequently the capacity utilisation rate in certain sub-sectors. Anyway, structural weaknesses in the food sector have aggravated the impact of the cyclical problems on the capacity utilisation rate in the sector. SPO refers to the weak financial structure of SMEs in the sector, wrong investment decisions, instability in export markets, seasonality of agricultural production and insufficient integration or coordination between agriculture and industry, which are factors that contributed to a lack of flexibility of the food sector in responding to economic downturns and changing consumer preferences. The low level of capacity utilisation indicates that a significant number of companies in the food sector produce rather inefficiently and would have rather low levels of profitability. What is promising, however, is that when the Turkish economy showed its first signs of recovery at the end of 2002, SPO noticed that capacity utilisation in the entire food sector also

⁷ The food industry is characterised by duality, with many small- and medium-sized companies but only a limited number of large-scale, modern companies quoted on the stock exchange. 24 Food and beverage companies listed on the Istanbul Stock Exchange (ISE) provide some information on the performance and structure of large companies in this industry. This information is available at: http://www.ise.org/company/companies_yb_2003.htm.

⁸ This might still be low compared to EU standards. For comparison: capacity utilisation in the major branches of the Dutch food industry has been between 80 and 90 per cent throughout the period 1990-2004 (CBS, Statline statistics). The generally low capacity utilisation in the Turkish food industry may be due to the fact that state-ownership is still significant in a number of branches. State-owned companies do not have to bear the consequences of inefficient production when their losses are covered by the government budget.

showed signs of improvement (SPO, 2004). Data on capacity utilisation that would reveal whether these improvements have continued in 2003 were not yet available by the end of 2004.

5. Wholesale and retailing structures

5.1 Wholesale structures

The wholesale structure has been dominated by the state or parastatal enterprises and quasi-state organisations for many years until this started to change as part of the 2001 economic reform programme. In the grains sector, the Turkish Grain Board (TMO) happened to be the key player, acting as a buffer stock agency to stabilise producer and consumer prices in wheat production. TMO provided signals to merchants about the future directions of the market by announcing purchasing prices, which were later re-determined based on market conditions. As part of the reform programme, TMO prices will be increasingly linked to the world price. In doing so, state procurement functions only as a “buyer of last resort”, as is now the case in the EU. As a first result of the reforms, TMO reduced its volume of intervention purchases to about 800,000 tons in 2002, which is only a third of 1999-2001 purchases (Lundell et al., 2004:16). In 2002, TMO also ceased announcing minimum purchases. The prices paid by TMO dropped by 13 per cent over 1999-2001, and by an additional 10 per cent in 2002.

In the marketing of agricultural commodities and inputs, agricultural sales co-operatives (clustered in 16 unions, called ASCUs) have been a major player in collecting and distributing a wide range of agricultural commodities for a long time. Established in the 1920s and 1930s to serve farmers in the purchase and processing of export crops such as cotton, hazelnuts, sunflower and olives, the ASCs/ASCUs were given a major role in the implementation of the government programme in the 1960s. Through the network of ASCUs the government was able to bolster producer prices through subsidies and market intervention. State control was further tightened in 1984 when the Ministry of Industry and Trade obtained extensive power to direct the operations of the ASCs/ASCUs. These co-operatives were used to purchase a maximum amount of agricultural produce with the aim of maintaining high prices for these products. In fact, the co-operatives acted as a state intervention agency. As part of the 2001 economic reform programme, ASCs/ASCUs are in a process of being transformed from parastatal organisations into financially autonomous and sustainable co-operatives that can compete with private traders while operating for the benefit of the farmers who formally own them. Presently 330 ASCs have around 750,000 members (Lundell et al., 2004:60). Whether the restructuring of the cooperatives and their reorientation will be successful remains to be seen. Inadequate revenue structures, overstaffing and little business orientation are just a few of the problems that need to be tackled before these organisations can play a role in improving the functioning of the market

Whereas special laws govern ASCs and ACCs, the roughly 5,000 Agricultural Development Co-operatives (ADCs) with some 500,000 members operate under the general cooperative law. ADCs tend to focus on activities not covered by the ASCs and ACCs, such as dairy and livestock, handicrafts, consumer articles and the marketing of fruits and vegetables. ADCs claim that they market 50 per cent of all milk and rice produced for the market in Turkey (Lundell et al., 2004: 63). The increasing numbers of newly established co-operatives and the expansion of the business volume of existing ADCs illustrate the increasing popularity of ADCs, which are currently mainly located in the Western and Central part of the country.

As well as the cooperative structures, private wholesale traders act as important intermediaries between the producer (farmer), processing and/or retail stage. The wholesale of perishable products such as fresh fruits and vegetables is largely in the hands of so-called commissioners. By law, the wholesale marketing of fresh fruits and vegetables has to go through recognised wholesale markets, where the tax office charges 5 per cent VAT, before products can be sold to the retail. The commissioners, appointed by the government, are the key intermediary party between the producer and the buyer. Growers are obliged to sell via commissioners, but are free to choose and may change from year to year. Services provided by commissioners in terms of grading and sorting are generally low, and commissioners tend to mix supply from different small-scale growers to create enough

volume (see, for instance Sirtioglu, 2004). On the other hand, many commissioners finance growers and offer them credits. Yet, such relations condition sales and therefore work against transparent price-making. As a consequence, Turkish wholesale markets are not playing an important role with regard to the development of quality standards and economic transparency. The wholesale markets are established and controlled by main cities or municipalities and/or regional municipalities. Both the commissioners and the municipalities receive a certain percentage of commission from the trade of the products.

5.2 Retail market structures

Modern retail in the form of super- and hypermarkets presently has over 40 per cent market share of Turkish consumer food expenditures (see table 6). The structure of the retail sector is significantly influenced by the type of food consumed by the majority of the population. For low-income groups, it is estimated that 55 per cent of the diet is made up of bread with an additional 15 per cent consisting of rice, potatoes and pasta products. These income groups are a majority of the Turkish population. They buy food products mainly on open markets (bazaars) and in local neighbourhood stores where the majority of products are made with local ingredients. For the entire population, processed products are only 15-20 per cent of consumption (see Box 1 for more details on food consumption patterns). The latter are mainly bought in the supermarkets. These large supermarkets are situated in urban areas and cater to those who have benefited most from Turkey's rising prosperity. Now that they have the income to afford it, this clientele have developed a penchant for Western, imported products.

Table 6. Retail food sector trends (market share in per cent according to outlet)

	1999	2000	2001	2002	2003*
Hypermarkets (over 2,500 m ²)	6.5	8	9.5	9.6	10
All supermarkets (100-2,500 m ²)	17	20	25	27.5	31
Markets (50-100 m ²)	12.5	10	9.5	9.4	9
Bakkals (< 50m ²)	49.5	48	42	40.5	36
Others (convenience stores, kiosks)	14.5	14	14	13	14

* estimate. Source: Sirtioglu, 2004:3

The first modern supermarkets in Turkey date back to the mid-1950s, but the true take-off of supermarkets occurred in the country only in the 1980s (Codron et al., 2004). Since then, the retail sector has developed rapidly with the sharp increase of the larger supermarkets and discount segment from the mid-1990s onwards. The share of these modern food stores in the overall food retail market is gradually increasing and is expected to grow from their current (2003) 42 per cent to more than 50 per cent of the retail market by the end of 2005 (Sirtioglu, 2004).

Modern supermarkets and discount stores are increasingly replacing traditional stores. The latter includes the small grocery retailers, called *bakkals*, that up to 1999 had a 50 per cent market share in the food retail sector (see table 6). This transformation has mainly occurred in the larger cities, but recent investments have targeted medium-sized cities where shopping habits are changing or in cities where tourism is intensive. In the future, hypermarkets, supermarkets and discount chains are expected to dominate the sector in the wealthier and larger urban areas of the country.

So far, the involvement of foreign investment in the retail sector is rather limited. Retail chains are largely in the hands of Turkish investors (like the companies Migros SOK, Gima, BİM, Tansas Makro, Yimpaş), with only some investment from Germany (Metro, Real), UK (Booker) and France (Carrefour). The economic recovery and increased food sales (in real terms) in 2003 also attracted investments from new international chains buying local chains. For example, Tesco (UK) bought majority shares of Kipa in 2003. Carrefour already entered Turkey in 1993 but was not very aggressive in gaining market share until 2001 when it rose to be a leader in the Turkish market.

The rather late entrance and cautious operations of foreign investors in the Turkish retail sector are due to the generally unattractive economic environment for private investors in the food chain, which persisted until recently. Although investment policy liberalisation started in the early 1980s, foreign investment was stimulated only by the customs union with the EU (1996) and the initiation of an EU membership procedure in 2001 (see also Tüsiad and Yased, 2004). As a result of these

decisions, trade barriers were reduced, inflation has been brought down, consumer price support has been almost totally removed, government control over strategic exports has been significantly reduced and FDI has been stimulated. The new law on FDI, ratified in 2003, may further encourage investments from abroad in the food sector.

Box 1. Food consumption patterns

Turkey may be considered a very promising market for food products. Turkey's population of almost 71 million (2003) is growing at over 1% annually. Over 27% of the population is under the age of 15, and this young population will continue the trend that has seen an increase in the demand for Western products and lifestyles. On the other hand, the extreme inequality in the distribution of family income throughout Turkey* limits Turkey's potential of being a major consumer market. Moreover, Turkish GDP per capita is 25% of the average for EU-15 (2003).

Turkish consumers spend around 30% (in urban areas) to 45% (in rural areas) of their income on food, beverages and tobacco (SIS consumer data 2004). Food consumption patterns over the recent decades have been affected by the rapid urbanisation, growing participation of women in the labour force and tourism. Consequently, demand for processed products and for livestock (milk, meat) products have grown over time. Dairy consumption estimates range between 15 and 32 kg of milk per capita. The highest figure mentioned is, however, still far below West-European consumption levels. Meat consumption has shifted in recent decades from lamb, mutton and goat to beef, veal and poultry due to changing tastes and costs. Domestic beef consumption decreased in recent years due to reduced animal supply, high rate of inflation, increased beef prices and reduced incomes because of economic crisis. Beef consumption is approximately 9 kg/capita (Sarigedik, 2004), while total meat consumption is estimated 17 kg/capita. The principal part of the diet remains flour and flour-based products, estimated to be around 200 kg of cereals per capita. Furthermore, the diet is rich in fruit and vegetables. Per capita consumption amounts to 230 kg fruit and 100 kg vegetables, or 330 kg total as compared with 180 kg in France. The Turkish consumption figures, which are already high, are underestimates as they exclude consumption from own gardens. This, the significant share of semi-subsistence farming in Turkey and its attendant unregistered production and consumption, generally obscure the actual consumption data.

* The wealthiest 10% of the country accounts for one third of its consumption, while the poorest 10% only account for 2-3% of the consumption (Agriculture and Agri-Food Canada, 2004).

6. Relationship of farms with markets

6.1 Linkages between farms, processors and traders

While in the preceding sections the structural features and performance of the different components of the agri-food chain have been described, this section focuses on the relationships between the market actors. Linkages between farmers, traders and processors can be either through the market or through contracts. Contract farming is not yet widespread in most agricultural sub-sectors in Turkey. For instance, in the dairy, beef, sunflower, olive and vegetable oil industry, most processors rely on open market purchase to provide raw materials (Rehber, 2004). The market structure of these products is highly fragmented, with many small-scale suppliers and many middlemen. The marketing channels are diverse, from local markets and local collectors to regional and municipal wholesale markets, traders, and many small-scale processors. Consequently, costs of collection, storage, marketing and processing are relatively high, while the quality and prices of the agricultural commodities may differ widely in time and place. Some details of the milk marketing system illustrate this. The low supply and low quality of the milk are the major problems in the sector. Approximately 80 per cent of all dairy milk produced is not offered to processing units but is sold as milk and dairy products on local and regional markets, not cooled and under unsuitable hygienic conditions (Azabağaoğlu et al., 2003). The processors are predominantly small-scale, have a low capacity usage (only one third in 2000) and have hardly invested in cold chains. They compete for the raw milk on price; due to high inflation rates in recent years, farmers were reluctant to agree on a settled price and just waited for the best deal. Processors sell their products mainly through the

mediation of wholesale markets. Processing firms sell to traditional and small groceries but very few firms work with modern retail chains, as they are not attractive to that outlet, due to their small scale and insufficient quality performance.

On the other hand, vertical coordination through contract farming occurs in some sectors in Turkey, when agricultural products have to go through a processing stage. Examples are certain horticultural products like tomatoes and peas, where the importance of contract farming has increased over time, and hops where 60 per cent of production is under contract (Rehber, 2004). Sugar beet growing (a minor crop in the agricultural sector) is grown only under contract, while fruit and vegetable processors rely partly on contract farming and partly on spot market purchases, as, for example, in the citrus sector.

Most traded volumes of fresh produce are sold via (a large network of many small-scale) traders through wholesale markets. As described above in section 5.1, a commissioner is the key intermediary between the producer and the buyer. The most common method for determining the price is by negotiation on the spot and/or at auction. Retail shops, *bakkals* and open bazaars all purchase most of their fresh products from a commissioner at the wholesale markets. A substantial share – about 35 per cent - of Turkey's citrus crop is processed, graded and packed for the high-quality domestic and export markets. About a dozen large packing companies dominate this part of the market. These companies purchase their raw material through contracting. Packers generally begin contracting in August and purchase the crop on the tree. Farmers are paid after the harvest, which is normally in September/October. This implies that contract farming does not include elements of pre-financing or access to inputs, yet the advantage for growers is certainty of payment. Packers estimate that about half the crop will be first or second grade, destined for the upscale local market and/or export market. The remainder receives minimal processing and is sold through a series of regional wholesalers and local retailers (Sarigedik, 2003).

6.2 Retail procurement systems and vertical integration in the agri-food supply chain

The development of the modern retail chain has a significant impact on the purchase systems in the food chain in Turkey. Codron et al. (2004) illustrate this with a case study of fresh fruits and vegetables (FFV). This group of perishables is largely bought on open markets (bazaars) and *bakkals*. These traditional outlets provide the basic attributes of low price and freshness. Yet, Turkish modern retailers place high priority on the FFV section and want to gain market share, by providing high and consistent quality at prices equivalent to those at the bazaars. To reach this aim, several supermarkets in Turkey have been shifting over the past years from the old system based on terminal wholesale markets towards the use of more integrated channels.⁹ Codron et al. categorise and position the Turkish supermarkets according to the level of backward integration and the main retailer-supplier governance structure: market or contract. Some retailers still procure fresh fruit and vegetables in the local wholesale market. These are the smaller chains, with only a few stores. Other retailers centralise the purchase of their FFV procurement with backward integration into the sorting function, yet they buy on the central wholesale market from numerous mono-product wholesalers. These retailers are located in the larger cities within a short distance of the central wholesale market. Both types of buyers rely on the market as the major governance structure. Some supermarkets, however, are turning to contractual agreements with shippers, i.e. those who buy from the field. For instance, Kipa-Tesco has established contractual relationships with many efficient local shippers who deliver products requested to the different retail stores, at short notice and with their own refrigerated trucks.

The wholesale market system in Turkey generally does not provide much service in terms of grading and sorting, while supply is often in small volumes that are difficult to combine. Retailers accept that quality standards are generally low, because they experience consumer quality awareness is still too low to warrant charging a premium. Contracts allow for complying with the private standards or requirements imposed by the retailer. Kipa-Tesco has an explicit strategy to compete on quality and demand guaranteed quality goods from their suppliers. These guarantees are enforced by contract. When the Turkish economy grows and a larger group of consumers become more discerning

⁹ Fresh fruit and vegetables must pass through wholesale markets by law. When a supermarket circumvents this through vertical coordination, its contracts are illegal. However, a law to address this is in process.

and quality aware, more supermarkets are expected to emphasise the quality attribute of their FFV products and may want to use contractual arrangements to realise that. A major challenge to the farming sector, then, is to meet the growing quality requirements and standards all along the chain. Failure to meet consumer requirements may result in further import penetration.

7. Implications for agri-food chain development

7.1 Bottlenecks to improved competitiveness

Joining the EU's single market would subject the Turkish food supply chain to competition from mature industries and highly efficient, well-organised companies in the rest of the Union. To be ready for this competition, the Turkish agri-food chain has to tackle a number of serious bottlenecks. The structure of the Turkish farm sector, the low share of upstream and downstream firms using modern technology and equipment, and the general over-capacity of companies in the food sector have all been described in the previous sections. The product flows through the chain mainly pass via the open market. The wholesale market system is considered rigid and inefficient, and lacks quality improvement incentives and price transparency. Low profitability, fragmentation, weak integration and low quality awareness are characteristics of the Turkish agri-food supply chain.

Competition on the fairly saturated EU food markets is increasingly with respect to quality. In Turkey, consumer awareness of quality issues is limited to a more prosperous minority. However, this group will increase in size as incomes rise and consumers become more discerning. Public policies in this field are important, too. For instance, most retailers in Turkey do not yet emphasise consumer packaging and safety issues when they define quality standards, partly because safety standards are not clearly defined or efficiently enforced by the authorities (Codron et al., 2004). Setting standards on food quality and food safety and enforcing the players to accept the rules of the game are important public responsibilities.

However, as well as income growth and public policies, the move towards competition on quality will be pushed by the rise of supermarket chains in the country. In fact, as examples from other parts of the world show (Reardon and Berdegue, 2002; Dries et al., 2004, Codron et al., 2004), the growth of the retail channels is a key factor for the development of the food industry and farming sector in the short and medium terms. Supermarkets pay increasing attention to quality as part of their strategy to gain market share from the traditional retail channels. If the Turkish agri-food chain wants to take part in the expected expansion of the modern retail sector, it has to match the quality of its supply with the quality demanded by the supermarkets. In setting their private standards, supermarkets normally take public standards as a minimum level. Complying with requirements set by the supermarkets in the coming years should help the Turkish agri-food chain prepare for possible EU membership.

7.2 Impact on the food industry

The increasing weight of large format supermarkets in the retail sector and the changes in the procurement system will boost the trend towards further consolidation in the food industry. The major driving force is the quality issue. Supermarkets in Turkey increasingly set conditions in terms of prices and quality of the supply offered by the food industry, as well as in terms of other product attributes such as appearance, product diversity, convenience, safety, and so on. Supermarkets also demand that suppliers comply with requirements for packaging and delivering times. Processors who want to be part of the supply chain have to adjust to these demands. This requires investment in production and process technology. Presently, most companies in the Turkish food processing industry use only basic production technology: only one out of six firms uses modern technology for production and quality control (USDA, 2004). Much investment in modern technology needs a minimum operational size to reach the break-even point. At present, in many branches a large share of the processing companies is too fragmented to make such investments. Small processing firms will *have* to invest in expansion, merge with others or form alliances to gain economies of scale, or leave the business.

Consolidation in the food industry will also be driven by supermarkets' preference for dealing with a limited number of large suppliers to minimise transaction costs. Food processors may also want to expand in order to strengthen their bargaining position vis-à-vis the large retail chains. The present low capacity usage in much of the food industry is detrimental to profitability and will inevitably lead to a restructuring of the industry.

Given the ownership, fragmentation and in the general low profitability of the companies in the Turkish agri-food supply chain, foreign direct investment (FDI) is expected to play an increasing role in the restructuring and modernisation of the Turkish food industry. Experience from Central and Eastern Europe indicates that the prospect of becoming an EU member can increase a country's attractiveness even if the date of accession is somewhere in the future. For instance, foreign capital inflows in Poland took off as soon as a starting date for EU accession negotiations was announced (see e.g. PAIIZ 2004). This announcement appears to be a signal to the business community that a country has passed a point of no return on the way to accession, which boosts the confidence of business in the political and economic stability of the country. There is no reason to assume that this would not happen in Turkey.

Basic conditions for attracting FDI are political and economic stability. As long as these two conditions are not met, foreign companies will be very cautious about investing in the country. Since the 2001 crisis, Turkey's economic situation and the investment climate for foreign investors have improved. The new FDI law of 2003 (Tüsiad and Yased, 2004) is also expected to encourage foreign investors, as this law abolished many technical barriers to FDI. Bureaucratic procedures were reduced and delays were shortened. Several other laws (on social security, work permits of foreign personnel, customs, property rights, etc.) for improving the investment environment were passed in mid-2003. This legislation embodies the principle of equal treatment, whereby foreign and domestic investors acquire the same rights and obligations. At the same time, foreign (EU and non-EU) companies are more likely to be keen to invest in local food production and distribution facilities in Turkey; a country with about (at the time of accession) 80 million relatively young consumers and with expected economic growth rates that are higher than in the 'old' EU member states, is surely an attractive market for many internationally operating food companies.

7.3 Impact on the farm sector

The retail and food processing industry will pass on the more demanding requirements with respect to food quality and safety to the farming sector. These demands may push many small farmers out of the market when they find it hard to comply with the requirements (Reardon and Berdegué, 2002; Berdegué et al., 2003). Small farmers often cannot make the necessary investments, because they have insufficient own resources and face problems in getting external credit. Moreover, especially in the case of unprocessed, perishable products such as fresh fruit and vegetables, large transaction costs make it more costly for retailers to deal with many small farmers rather than with a few larger suppliers. However, small and medium farmers *can* have a future in modern retail chains. Investments by retailers and/or food processors and vertical coordination with suppliers appear to be crucial in this process (see e.g. Berdegué et al., 2003; Dries and Swinnen, 2004). Examples from elsewhere show that a farm assistance programme offered by retailers or food processors may be an important instrument for giving farms access to inputs such as knowledge and techniques, and enhancing their output in terms of quality and quantity.

The process of vertical contracting risks excluding small farms. However, the equity implications of such integrated chains are a justification for public policy involvement. Areas for government initiatives could include stimulating the emergence of alternative marketing structures (e.g. cooperatives), promoting associations of (small) farms to increase their bargaining power vis-à-vis the agribusiness companies and reducing transaction costs for companies dealing with small farms. However, given the present structure and backwardness of a large share of the farms, such initiatives will not cancel out the need for farm restructuring in Turkey.

8. Conclusions

The structural features of the Turkish agri-food chain vary along and within the different levels of the supply chain. As with regard to the industries upstream of farming a few large enterprises dominate the fertilisers and pesticides industry, whereas the animal feed industry is characterised by many smaller firms. At primary level, farm structures are highly fragmented with a large part of the sector being (semi-) subsistence. The structure of the food processing industry also varies between branches. Although generally fragmented, there is significant structural concentration in a number of branches of the food industry, such as in the starch, beverages and tobacco industry. Market power does not seem to exist although hard evidence to verify this is not available.

The government used to intervene in the agricultural market through state-owned enterprises and government controlled marketing organisations but it has reduced its role during the last two decades. For instance, the private sector is increasingly involved in the seed and meat sector while the state has completely privatised state-owned factories in the dairy and feed industries in the 1990s. Further privatisation of state-owned enterprises is, however, still to come in the sugar, meat, fish, beverages and tobacco industry. Agricultural marketing cooperatives – in previous times controlled by the government - are in a process of being transformed into fully independent organisations. The success of this transformation is, however, questionable, as these organisations are characterised by inadequate revenue structures, overstaffing and little business orientation. Next, the wholesale market system for fresh products is dominated by commissioners, appointed by the government. This system does not contribute to the development of quality standards, while low economic transparency limits opportunities for tracing products in the food chain.

The performance of the food industry is hard to assess, due to a lack of information. A bad sign is that in general, the food industry suffers from over-capacity. The low level of capacity utilisation indicates that a significant number of companies produce rather inefficient and would have low levels of profitability. On the other hand, there is a small number of large, modern food companies, some of them quoted at the stock exchange. Information on the performance of the latter indicates that some of those companies recorded high profits in recent years.

Processors purchase most agricultural commodities on the market: contract farming is not widespread in Turkish agriculture. Supermarkets, on the other hand, are increasingly shifting from buying fresh products at wholesale markets towards the use of more integrated channels in order to purchase guaranteed quantities and quality against competitive prices. The dynamics in the retail sector is impressive: supermarkets develop rapidly and are increasingly replacing traditional stores. Foreign investment in the retail sector as well as in the food processing industry is rather limited. The new law on foreign direct investment, ratified in 2003, may further encourage investments from abroad in the food sector.

Both modern retail and foreign investment are considered important drivers behind further development of the Turkish agri-food supply chain. The supermarket industry has begun moving along a stable path, promising considerable improvements in food quality on medium term. Foreign investment would bring in necessary capital plus technology, marketing and management knowledge for modernising upstream and downstream industries. However, for a stronger and more competitive food supply chain, the Turkish farming sector with its large share of semi-subsistent and fragmented farms needs to be re-structured.

References

- Agriculture and Agri-Food Canada (2004). Agri-food country profile Turkey, March 2004, Ottawa.
- Azabağaoğlu, M.O., O. Gaytancıoğlu, A. Kubaş and R. Erbay (2003). Analysis of the marketing structure of the dairy industry in the Trakya region and the determination of emerging issues with multidimensional scaling, *Turkish Journal of Agricultural Forecasting*, 27:117-122.
- Berdegué, J.A., F. Balsevitch, L. Flores and T. Reardon (2003). Supermarkets and private standards for produce quality and safety in Central America: development implications. Report to USAID under the RAISE/SPS project, Michichan State University and RIMISP, July 2003.

- Cakmak, E.H. (2004). *Structural change and market opening in agriculture*, paper presented at the CEPS and EFPP Workshop on Economic Issues (Agriculture), Strategy for EU and Turkey in the Pre-Accession Period, Brussels, September 27.
- Codron, J.M., Z. Bouhsina, F. Fort, E. Coudel and A. Puech (2004). Supermarkets in low-income Mediterranean countries: impacts on horticulture systems. *Development Policy Review*, 22 (5): 587-602.
- Dries, L. and J.F.M. Swinnen (2004). Foreign direct investment, vertical integration and local suppliers: evidence from the Polish dairy sector, *World Development* 32: 9: 1525-1544.
- Dries, F., T. Reardon and J.F.M. Swinnen (2004). The rapid rise of supermarkets in Central and Eastern Europe: implications for the agrifood sector and the rural development, *Development Policy Review*, 22: 525-556.
- Kindap, A. (1998). Current state of the mixed-feed manufacturing in Turkey in relations with livestock and poultry sectors and raw material supply position, *CIHEAM – Options méditerranéennes*, pp.337-345.
- Loewendahl, H. and E. Ertugal-Loewendahl (2001). *Turkey's performance in attracting foreign direct investment*, ENEPRI Working paper no. 8, November 2001
- Lundell, M., J. Lampietti, R. Pertev, L. Pohlmeier, H. Akder, E. Ocek and S. Jha (2004). *Turkey: A Review of the Impact of the Reform of Agricultural Sector Subsidisation*. World Bank, March 9, 2004.
- PAIIZ (Polish Information and Foreign Investment Agency) (2004). The list of major foreign investors in Poland. Warsaw, 2004.
- Privatisation Administration (2004). Privatisation implementations between 1985 and 2004. Accessed 16 August 2004. <http://www.treasury.gov.tr/english/ybs/ybsyeniing.htm>
- Reardon, T. and J.A. Berdegue (2002). The rapid rise of supermarket in Latin America: challenges and opportunities for development, *Development Policy Review* 20(4):317-334.
- Rehber, E. (2004). Vertical integration in the food industry and contract farming. The case of Turkey, *Outlook on Agriculture*, vol. 33, no. 2, pp.85-91.
- Royal Netherlands Embassy, Office of the Agricultural Counsellor Ankara (2004a). *Food processing machinery in Turkey*. Ankara.
- Royal Netherlands Embassy, Office of the Agricultural Counsellor Ankara (2004b). *Turkish horticultural sector*. Ankara.
- Royal Netherlands Embassy, Office of the Agricultural Counsellor Ankara (2004c), *Market Scan – Turkish cheese sector*, Ankara.
- Sarigedik, U. (2003). *Turkey Citrus Annual 2003*. USDA, FAS, GAIN report TU#3030, 10/31/2003.
- Sarigedik, U. (2004). *Turkey livestock and products, annual report 2004*. USDA FAS, GAIN Report TU4022, 7/11/2004
- Sirtioglu, I. (2004). *Turkey retail food sector report 2004*. USDA FAS, GAIN report TU#4005, 3/8/2004.
- SIS (2004). Concentration in Turkish Manufacturing Industry, 2001 (website <http://www.die.gov.tr>, visited at 6 September, 2004.
- SPO (State Planning Organisation of the Republic of Turkey) (2004). *Sector profiles of Turkish industry, a general outlook*. General Directorate for Economic Sectors and Coordination, Industry Department, 2004.
- TCZB (Agricultural Bank of Turkey) (2004). *Annual Report 2003*. Ankara, TC Ziraat Bank, 2004.
- Turkish Treasury (2004). Foreign investment statistics. Accessed 16 August 2004 <http://www.treasury.gov.tr/english/ybs/ybsyeniing.htm>
- TÜSIAD (2003). Output and industrial structure. In: *European Union and Turkey: Towards Economic Integration*. Available at <http://www.tusiad.org/english/rapor/te/2.pdf>
- Tüsiad and Yased (2004). *FDI attractiveness of Turkey, a comparative analysis*. At www.yased.org.tr.
- UNCTAD (2002). *World Investment Report, 2002*. UNCTAD, Geneva.
- USDA (2004). *Turkey Exporter Guide Annual 2004*. FAS, GAIN report TU#4008, 3/17/2004.