

INFRASTRUCTURE, LOGISTICS AND AGRO-FOOD DYNAMICS IN TURKEY

Selma Tozanli
CIHEAM-MAI Montpellier

For a long time Turkey sought to promote a self-centred model of development. Things changed from the 1980s as the structural adjustment policies have led to the opening of the Turkish economy to the world market. After the new financial crisis of the beginning of the 2000s, the external and internal liberalisation was accelerated.

Located at the crossroads of three continents (Europe, Asia and Africa) with a total surface area of over 800,000 km² and surrounded on three sides by seas, Turkey extends from Minor Asia towards oriental Thrace for over 1,660 km. Endowed with a varied agricultural and productive wealth, the country is almost self-sufficient to feed a total population of 75 million and to export part of its national agricultural production. Its agribusiness appears as one of the sectors that mainly export towards Southern and Eastern Mediterranean countries (SEMCs), Countries of Central and Eastern Europe (CEECs) and Asian countries. Concerning imports, although Western Europe, the European Union and countries of the European Free Trade Association (EFTA) constitute one of the important “supply” zones, since the 2000s, the Balkans, Russia, Ukraine and Moldavia began to position themselves as first suppliers of Turkey in raw (RAC) and processed (PAC) agro-food commodities. Asia and even Latin America are gradually becoming privileged business partners of the country.

In this new structural configuration of the food-processing trade, Turkey is not disconnected from its Mediterranean neighbourhood. It is therefore interesting to analyse the evolution of commercial and other agreements that Turkey establishes with its Mediterranean and other partners as well as how this development affects the growth and extent of its transport and logistics sector. What are the infrastructural investments that Turkey has undertaken during the last ten years in order to achieve its goal of becoming the trade hub in the Mediterranean and enjoy its geostrategic advantage?

From a description of trade in Turkey from 1986 to the present day, based on the international trade statistics of the FAO, we shall firstly see how this evolution is built with the growing number of trade agreements between Turkey and its partners. Secondly, we will analyse in detail the transport and logistics sectors and finally discuss the infrastructural investments that the country is making in order to improve its transport networks and create the necessary conditions for the establishment of logistics platforms and villages, both strategic for the smooth flow of goods, services and information.

Turkey's position in the international agro-food trade

The position of the agro-food sector in Turkish international exchanges slightly declined between 1970 and 2010. According to Turkstat data¹, in 1970, the share of exports of raw food commodities in the country's total exports amounted to 6.1%, and that of processed food products to 7.1%. The agro-food sector including all exports represented 30 billion euros, i.e. 13.2%. This share fell to 10% in 2012 with a total export of 119 billion euros, all sectors included. The exports of raw food products showed the largest drop representing only 3.5% of total exports, all sectors included while the share of processed food products dropped to 6.5%. The growth in imports of raw or processed food commodities between 1970 and 2012 was spectacular. In 1970, the total value of imports, 59 billion euros, rose to 184 billion dollars in 2012. Imports of raw foodstuffs, which represented 3.1% of this total value in 1970, amounted to 3 and 6% in 2012, while the share of the transformed processed food products remained stable over the period (2.2% of the total imports in 1970 and 2012).

Despite this rather modest place in Turkey's international trades, the food sector ranks among the top ten exporters in the world for several different raw and/or processed² food products. According to FAO data, in 2010³, Turkey was the largest world exporter of raisins, dried apricots and dried figs, the second largest world exporter of wheat flour, pasta, prepared walnuts, poppy seeds and lemons, and the third largest world exporter of concentrated apple juice, fresh apricots, yogurt, pickled vegetables, citrus fruit, lentils and cherries. Turkey is also among the top ten world exporters of fresh tomatoes, various preparations of cereals, table olives, tomato paste, industrial bakery and pastry products, cream cheese, margarine and virgin olive oil.

Our analyses⁴ also show that Turkey widened its range of imported and exported products while diversifying supplier/customer countries/zones⁵. Figures 1 and 2 reveal that this diversification is both desired by public authorities and private actors to avoid being dependent on a single supplier country/zone or on a single customer country/zone. We indeed note that Turkey increasingly applies a strategy that favours South-South exchanges and orientates its exports towards the SEMCs, the CEECs

1 - www.tuik.gov.tr/disticaretapp

2 - Only raw or transformed processed foods products intended for human consumption are taken into account here. In accordance with the UN nomenclature, tobacco and drinks are included in this definition.

3 - Faostat (www.fao.org).

4 - For this analysis of Turkish international trade, we referred to the statistical data of the FAO presented in the trade matrices. These data are available for the period between 1986 to 2010. Our study thus focuses on a period of twenty-four years.

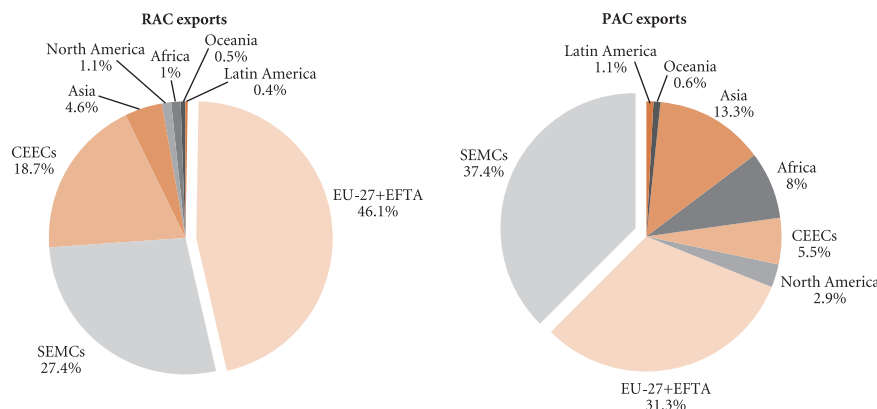
5 - For a thorough analysis of Turkey's relations with its Mediterranean neighbors, see Huber (2013).

and towards Asian and Latin American countries. With regards to imports, Turkey's main supply zones in raw and/or processed food products are the CEECs, North America, Asia and Latin America. It is interesting to note that although positioned first or second rank in the Turkish agro-food trade, the shares of western Europe (EU-27 + EFTA) are stagnating and even decreasing.

Turkey increasingly imports cereal, fresh fruit and vegetables, oleaginous, fodder and raw leguminous from the CEEC, African and Latin America countries. The CEECs, Latin America, North America and, in fourth rank, western Europe are Turkey's main suppliers in processed food commodities, essentially cattle food, edible vegetable oil and unrefined or refined sugar.

Turkey's raw foodstuffs, mainly fruit and fresh vegetables, tobacco leaves and leguminous are mainly exported to the SEMCs, western Europe and Asia. Followed by the CEECs and by Asia, these countries are recipients of Turkish processed foods commodities mainly derived from cereals (wheat flour, pasta, and industrial bakery and pastry products), non-alcoholic drinks, confectionary/chocolate products, refined vegetable oils and margarine.

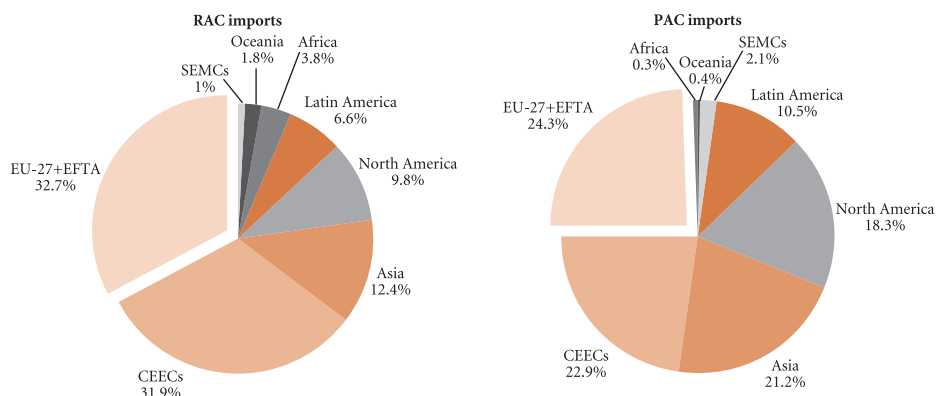
Figure 1 - Exports volumes of RAC and PAC from Turkey by main destination areas between 2001 and 2010



Note: Ten-year average.

Source: Adaptations of the author based on Faostat data.

Figure 2 - Import volumes of RAC and PAC by main exporting areas between 2001 and 2010



Note: Ten-year average.

Source: Adaptations of the author based on Faostat data.

In order to analyse the evolution of these exchanges, we calculated the average annual growth rate (CAGR) for the period 1986-2010 (see Table 1). These calculations reveal that central and eastern Europe and Asia, followed by Africa, are the most dynamic supply zones for raw agro-food commodities (RAC) as well as for processed agro-food commodities (PAC). Like the African continent and with rather high CAGR, Asia, Latin America and Oceania, stand out as recipient areas for Turkish processed agro-food exports and show a strong potential for future development. Despite the fact that Turkish economy is still closely linked to the agricultural sector, especially the agro-food chain, the growth trends for this studied twenty-four year period lead us to think that in a near future, a swing will work in favour of processed agro-food product exports, increasingly towards “southern countries”.

Table 1 - CAGR of Turkish imports and exports between 1986 and 2010, by main “supply” and “customer” zones (in %)

“Supply/Customer zones”	CAGR of imports 1986-2010		CAGR of exports 1986-2010	
	RAC	PAC	RAC	PAC
CEECs	5.4	10.2	5.8	4.5
Africa	6.6	7.3	3.4	15.3
North America	0.8	5.7	– 1.0	3.2
SEMCs	5.9	4.9	1.5	3.3
Asia	9.0	3.3	2.1	5.2
Oceania	– 3.8	3.2	2.8	4.9
Latin America	0.2	3.1	3.6	5.0
EU-27 + EFTA	3.2	1.4	1.1	2.0
Total	3.1	3.5	1.9	3.5

RAC: Raw Agro-Food Commodities.

PAC: Processed Agro-Food Commodities.

Source: Adaptations of the author based on Faostat data (www.fao.org).

This trend will materialise and perpetuate over time thanks to the government’s will to establish a vast network of bilateral trade agreements with the SEMCs (Huber, 2013). Turkey pursues this same geo-economical strategy with the CEECs and with Central Asian countries, the Black Sea and Asian countries (see Table 2).

Table 2 - 2011 Assessment of bilateral trade agreements between Turkey and the SEMCs

Countries	Free trade agreements	Economical, commercial, industrial, technical and scientific partnerships	Preventing double-taxation	Agreement on transport facilitation	Bilateral investment promotion and protection	Sea trade agreement	Road and air transport agreement	Tourism agreement
Algeria	X	X	X		X	X		
Egypt	X	X	X	X	X	X		X
Iran								
Israel	X	X	X		X			X
Jordan	X	X	X	X	X		X	
Libya		X			X			
Lebanon	X	X	X		X		X	
Morocco	X	X			X	X	X	X
Tunisia	X	X	X		X	X	X	X
Syria	X	X	X	X	X		X	X
Iran								

Source: Kalaycıoğlu (2011).

These trade agreements facilitate exchanges between partner countries by decreasing the waiting time and transaction costs (World Bank, 2012). Turkey signs free trade agreements with the countries with which the European Union conducts negotiations in accordance with the terms of the European treaty on customs union. Free trade agreements are also signed with Macedonia, Croatia, Bosnia and Herzegovina, Albania, Georgia, Serbia and Montenegro, Chile, Mauritania and South Korea⁶. Turkey is negotiating with fourteen other countries including Ukraine, Colombia, Ecuador, Malaysia, Kosovo, Moldavia, the democratic Republic of Congo, Ghana, Cameroon, Seychelles and the Faeroe Islands. Other agreements are being negotiated with the United States, Canada, Japan, India, Indonesia, Vietnam, Peru, Mexico and the Central African Republic. While improving the institutional framework of exchanges, these initiatives provide Turkey with the necessary conditions to increase its competitiveness on international markets and reduce its dependence on European Union markets⁷.

Box 1: Turkish agro-food trade

This box gives an overview of agro-food trade performance in Turkey in the last twelve years. It also includes snapshots on the major agro-food trading partners and on the characteristics of Turkish agro-food products.

Historically, Turkey has clearly been an exporter of agro-food products (see Table 3). However, this position of Turkey should be evaluated with caution because of the heavy tariff and non-tariff protectionism of some major agricultural products. For instance, the imports of meat, dairy products, sugar and cereals are rare due to prohibitive protectionism. The average consumer spends more than 30% of his income on food.

The government allows the importation of basic foods in the case of world or domestic price hikes. By granting duty free imports the government has managed to decrease the wedge between domestic and world prices. The general tendency of the agro-food import policy has been to allow the imports of manufactured intermediate inputs intended for exports. Coupled with high performing exports, the high protectionism has oriented agricultural production. This has also been a major factor in supporting agro-food trade exports.

Table 3 - Turkish agro-food trade* (1999-2011)

	1999-2001	2003-2005	2007-2009	2010-2011
Agro-food trade (million dollars)				
Exports	3,996	6,220	10,098	13,130
Imports	2,763	4,501	8,386	11,711
Net exports	1,233	1,718	1,712	1,419
Total export and import percentage				
Agro-food export	14.0	10.1	8.9	10.6
Agro-food import	6.1	4.8	4.9	5.5

* Including all products covered by the WTO-Agreement on Agriculture (medium terms).

Source: Turkstat (2013).

⁶ - According to information provided by the Turkish Ministry of economy (www.ekonomi.gov.tr/sta/#ftnrefl).

⁷ - *Ibid.*

The average annual growth rate of agro-food imports (17%) was higher than the corresponding rate of agro-food exports (13%) during the last decade. Both exports and imports gained momentum thanks to the macro-reform program including agriculture. The net agro-food exports have declined in the recent years.

Although the EU remains the top destination for agro-food exports, the share of the Near and Middle East is growing rapidly (see Table 4). The net exports to the EU have remained positive during the last decade. The already low share of North African countries in the agro-food imports from Turkey declined steadily. Agro-food exports to North Africa have stagnated. They amounted to around 3-4% during the last decade.

Table 4 - The percentage of the trading partners of Turkey in agro-food trade* (1999-2011, in %)

Regions and Countries	Exports				Imports			
	1999-2001	2003-2005	2007-2009	2010-2011	1999-2001	2003-2005	2007-2009	2010-2011
EU-27	47.6	50.5	40.1	34.3	31.2	33.0	27.8	29.2
Near and Middle East**	15.5	16.0	23.0	29.6	5.4	3.4	1.4	1.6
North Africa	4.6	3.2	3.9	4.1	1.9	1.4	1.2	0.7
Rest of the World	32.3	30.4	33.0	32.0	61.6	62.2	69.7	68.6

* Including all products covered by the WTO-Agreement on Agriculture (medium terms).

** The data for Iraq start in 2003.

Source: Turkstat (2013).

The overview of trade by level of processing and the relative proximity of the products to the final consumers is presented in Table 5. Around 77% of Turkish exports are finished goods. The opposite is observed in the imports. The imports of wholesale commodities and intermediate goods constitute around 80% of Turkey's total agro-food imports. A rapid decline in the share of wholesale exports and the stagnant share of wholesale imports may be considered as the manifestation of high protectionism. A steady increase in the imports of finished products reveals the advantage of opening markets, mainly through preferential trade agreements.

The share of finished products in agro-food exports to the EU recently reached 90%. A similar pace is observed in the imports from the EU, but depending on products, the shares are more evenly distributed. The agro-food trade between Turkey and the MENA countries presents a similar development. In general, the different product categories become final products when they are intended for exports. The concentration on a few sub-sectors seems to be remarkable. Fruits, nuts and vegetables make up around 40% of exports. Another 20% of exports consist of processed fruit and vegetable products. An increasing trend in processed cereals can also be observed. In the case of imports, there is a slight change. Intermediate inputs and finished products are preferred to raw materials in bulk. Representing more than half the total imports, various agricultural raw materials, especially leather skins and fibers are dominant in agro-food imports. Despite the generous national subsidies to support the production of oleaginous, its share in total imports remained at around 25%.

Table 5 - Turkish agro-food trade* according to product categories (1999-2011, in %)

	Total Exports				Total Imports			
Product categories**	1999-2001	2003-2005	2007-2009	2010-2011	1999-2001	2003-2005	2007-2009	2010-2011
Commodities	18.2	10.9	7.8	7.2	46.9	44.0	42.6	40.4
Intermediate Products	16.2	14.8	15.0	16.2	36.6	38.7	37.0	38.5
Finished Products	65.7	74.2	77.2	76.5	16.4	17.3	20.4	21.1
	Exports to EU-27				Imports from EU-27			
Commodities	14.9	9.8	8.2	7.9	30.9	23.9	25.6	18.6
Intermediate Products	10.5	9.3	5.8	5.4	42.8	44.5	38.6	42.1
Finished Products	74.6	81.0	86.0	86.7	26.3	31.7	35.8	39.3
	Exports to Near and Middle East				Imports from Near and Middle East			
Commodities	5.4	4.9	3.3	4.2	56.6	54.7	29.1	34.3
Intermediate Products	37.4	28.5	29.9	30.2	31.8	33.7	41.9	38.5
Finished Products	57.3	66.6	66.8	65.6	11.5	11.5	29.0	27.2
	Exports to North Africa				Imports from North Africa			
Commodities	41.2	6.3	3.5	9.7	86.2	74.2	71.3	52.1
Intermediate Products	12.7	33.8	26.2	19.1	7.3	19.8	15.3	27.3
Finished Products	46.1	59.9	70.3	71.2	6.5	6.1	13.4	20.6
	Exports to ROW				Imports from ROW			
Commodities	25.8	16.5	11.0	9.0	53.0	53.4	49.2	49.7
Intermediate Products	14.8	14.9	14.6	14.6	34.8	36.4	36.6	37.0
Finished Products	59.3	68.5	74.5	76.4	12.2	10.2	14.2	13.3

* Including all products covered by the WTO-Agreement on Agriculture (medium terms).

** Definitions of categories are from EC (2010).

Source: Turkstat (2013); EC (2010).

Given the relatively small space left to exporters, the dynamic nature of food trade should be acknowledged. Basically, Turkey allows the imports of commodities to feed its growing population and to meet the exporters' intermediate inputs. The performance of the trade sector depends entirely on the ability of exporters of fruit and vegetable products in exploiting international market opportunities. It may be noted with irony that the level of government involvement in this type of product

is almost nil. The opposite is observed in the basic food commodities. Almost all policies target basic crop products and Turkey is becoming a perpetual net importer in this product group.

Turkish agro-food trade is based on crop products. Trade in livestock products remains negligible. Hence, Turkey is far from considering the full development of agro-food trade. Supported by the increasing productivity of policy measures promoting agricultural trade liberalization, the operating margin of fruit and vegetable exporters will be expanded. Finally, the ability of the agro-food sector to compete with imports and international markets would increase its potential.

H. Ozan Eryugur, University of Gazi, Ankara (Turkey) and Erol H. Cakmak, TED University, Ankara (Turkey).

Sources: European Commission (EC) (2010), Definitions of Agricultural Commodities, Intermediate and Final Products as Defined in the Combined Nomenclature (<http://ec.europa.eu/agriculture/agrista/tradestats/annexes/annex4.htm>); TurkStat (2013), Foreign Trade Statistics [Data files], Ankara, Turkstat (<http://tuik.gov.tr>).

Transport and logistics in the development of the Turkish agro-food sector and its expansion at international level

Supported by the improvement of its international institutional framework, the ongoing growth of Turkish international exchanges is transforming haulage companies into real logistics service providing companies. Besides the will to avoid geopolitical conflicts that continue in the region, the need to gain time and decrease transport costs lead these companies to gradually opt for intermodal and roll-on, roll-off transport. After a first line established in 1985 between Istanbul (Haydarpaşa) and Romania (Köstence), several others have been established to transport goods to Italy, Russia, France, Ukraine or even Romania. The private company U. N. RO-RO İşletmeleri A. Ş. founded in 1994, taken over by the financial firm KKR in 2007, then sold again to DSV, the Danish giant of the logistics sector, remains so far the most active company in terms of Ro-Ro transport between Turkey and European countries (Ersoy and Tozanlı, 2012).

However, one should not undermine the role of internal dynamics in this development. The extension of the setting-up of big agro-tertiary and retail companies since the 1990s have given a spectacular boost to the development of logistics in the Turkish internal market. By introducing their own standards and requirements in terms of supply, transport and storage on the domestic market, these companies have enabled an impressive technological and organisational upgrade. Thus, the years 2000 mark a period of an even stronger expansion of the Turkish logistic sector.

With an annual growth rate of 20% since 2005, this sector occupies the second position behind tourism in the list of the most dynamic sectors of the country. Above all, it places Turkey in 26th position of the world rankings and in 2nd position of the SEMCs, according to the performance index of the logistics sector (average for the years 2008-2012) established by the World Bank, while the country was in 39th position in the world rankings based on the average for the years 2007-2011⁸. The

8 - <http://donnees.banquemondiale.org/indicateur/LP.LPI.OVRL.XQ/countries?display=default>

sector is no more only defined by the only function of transport but also includes 3PL service companies (a third logistic part), i.e. it is in charge of an important part of the logistics for its customers. The arrival of foreign capital in this sector is a driving development factor through the technological transfer that foreign companies introduce into the national sector. Today, the share of foreign firms in the total logistics market shares is estimated at 30% in the overall market. (Karadogan, 2011).

With a 78 billion euro total value in 2012 (against 41 billion euros in 2008), the share of transport and logistics⁹ sector in the GDP at this date was estimated at 14% (Turkstat, 2013; IGEME, 2009). A recent survey realized by Quattro Business Consulting with 502 logistic firms, reveals that the sector accounts a total value of activities of about 120 billion euros. However, the economic vitality of the sector remains very uneven. This situation is directly related to the distrust of industrial firms, customers of the logistic sector operators vis-à-vis 3PL firms. The big industrial companies generally pursue an internalization policy of logistic activities and for strategic reasons, do not share, refrigerated trucks or warehouses with their competitors. For this reason, the share of 3PL firms in the national GDP remains below the threshold of 10%, and their growth rate between 2005 and 2010 hardly reaches 7% (against an average of 20% for the whole sector). However the big agro-industrial firms opt for a different strategy. A typology can therefore be established according to the behaviour and the investments of firms in the logistic sector (Ersoy and Tozanli, on 2012).

These international firms are almost exclusively orientated towards international trade activities. It is important to remind that 54% of exports and 24% of imports are made by international transport companies, 1,340 in 2009 (Gülen, on 2010). Besides, there are 2,000 customs agencies, 250 3PL companies and 200 customs warehouses (Deloitte, 2010). However the structure of the sector remains very heterogeneous and dispersed (Babacan, 2003). In Turkey, three types of actors can be distinguished:

- A very large number of micro-companies exclusively operating on domestic road transport, looking for short-term profits and that have a conventional vision without a forward-looking strategy. They constitute two thirds of the active firms in the sector.
- A rather important number of small and medium-sized enterprises (SME), mostly family owned and originally orientated towards road transport before evolving towards bigger logistics companies. Very often managed according to the personality of the founding entrepreneur, they tend to develop a dynamic commercial vision.
- Some very large companies with strategies centred on the average and long terms with modern management and aiming at competitiveness at a regional or even global level. Most of them are 3PL. They include foreign companies settled in Turkey, which establish partnerships with their Turkish counterparts or create their own subsidiary in the country. As global actors, these logistic companies significantly invest abroad and organize their activities at global scale. Some of them are more particularly specialized in the logistics of food products (Baynak Lojistik, Netlog Lojistik/Polar Lojistik/Polar XP, CEVA and Omsan) (see Table 6).

⁹ - Communication transport and storage sectors according to the official title of the Turkish statistical Institute (www.tuik.gov.tr).

Table 6 - Rankings of the major Turkish logistics companies according to their turnover in 2011

Company	Group	Turnover 2012 (2) (in million euros)	Turnover 2011 (in million euros)	Turnover 2010 (3) (in million euros)	Turnover 2009 (in million euros)	Variation 2011-2009	Foreign Location (4)
UN Ro-Ro İşletmeleri A. Ş.	DSV (Denmark)		200 (e)				–
UPS Türkiye (e.g. Unsped Paket Servisi)	UPS (United States)		n. c.	n. c.	146.1		
Ceva Lojistik	CEVA Logistics (United States)		269.4	226.3	113.1	100.1%	
Netlog Lojistik Servisi	Family Çak	312.1	275.3	188.7	135.1	38.7%	Afghanistan, Romania
Horoz Lojistik	Horoz Şirketler Grubu	146.1	240.3	176.6	83.0	112.7%	Germany, Italy, Russia, Poland
Borusan Lojistik Dağıtım	Borusan Holding	461.3	205.5	162.5	123.4	31.70%	Netherlands, EAE, Algeria, Kazakhstan
Omsan Lojistik	OYAK (1)	246.4	217.5	139.8	214.8	12.0%	Germany, France, Bulgaria, Romania, Russia, Azerbaijan
Fasdat Gıda Dağıtım	Ata Holding		182.2	198.1	90.3	53.0%	
Ekol Lojistik	Invest AD (EAU)	284.4	221.1	128.6	123.3	4.3%	Germany, Italy, Romania
Balnak Lojistik Grubu	The Great Circle Fund (United States)		142.5	115.8	103.1	12.2%	Libya, Egypt
Mersin Uluslararası Liman İşletmeciliği	Akfen Holding, PSA International (Singapore)		142.5	112.4	94.1	19.4%	
Reysaş Lojistik	Reysaş Grubu	127.3	102.4	91.7	90.3	1.5%	Malta
Mars Lojistik	Mars Lojistik Grubu		130.2	81.9	86.3	– 5.2%	France, Tunisia, Germany, Belgium
Gökbora	Gökbora			72 (e)			Germany, Italy, Romania, France, Azerbaijan, Bulgaria

(1) Turkish army pension funds.

(2) Fortune 500 Turkey 2010 (www.fortuneturkey.com/fortune500-2010).

(3) Company Sites.

(4) Company websites.

(e) Estimates

Note: For exchange rates see <http://fxtop.com/fr/historique-taux-change>Source: Capital 500 (www.capital.com.tr/siralamalar/html/2010.ht).

According to state statistics, today, including several jobs and activities, the transport and logistics sectors employ 1.1 million people (Turkstat, 2013). Road transport dominates the sector, both in number of companies and in terms of shares: in 2009, 42% of Turkish imports were made by road transport (46% by maritime transport), a share that reached 59% of the country's exports (Deloitte, 2010). The predominance of road transport is even clearer at national level, because it approximately ensures 90% of the routing of goods.

Box 2: The fruit and fresh vegetables chain and the impact of large-scale distribution on its reorganisation

The quinquennial averages (2006-2010) for fruits and fresh vegetables (FLF) in Turkey show that only 10% of the production is exported (approximately 4 million tonnes for 40 million produced tonnes) (Turkstat, 2013). If we consider that approximately 30% of the production is later damaged and lost after harvest and if 15% of this total production is transferred to the food-processing¹⁰ industry, 22 million tonnes of fruits and vegetables would thus be marketed on the domestic market. According to Ibrahim Yet Kin, president of the Farmers' Association of Turkey, "the major part of fruits and vegetables is marketed off the formal circuits, since only 9 in 10 million tonnes of fruits and fresh vegetables transit through wholesalers¹¹". In the formal circuits, the position of the modern large-scale distribution is increasingly growing. The market shares of all fruit and vegetable purchases approximately represent 25% of consumers' expenses. The survey made by Sonar¹² in 2004, on a sample of 1,177 people in ten big Turkish cities, shows that 28.4% of the interviewees declared buying fruits and vegetables from district markets, 22.2% from hypermarkets and supermarkets, 14.8% from fruits and vegetable shops and 9% from other types of outlets.

Another survey conducted in the city of Antalya in 2009 among 669 households reveals that 43% of fruits and vegetable purchases are made from district markets, 27% from hypermarkets and supermarkets, 18% from specialised greengrocers and 12% from other types of outlets¹³. By organising the management of its supply chain, large-scale distribution has undoubtedly a growing impact on the coordination of the various functions of logistics and in the reorganisation of the local fruit and vegetable channels. The supply strategies of the largest companies in the retail trade vary from a brand to another. For the first time in the country, in 2009, Migros Turk, signed an agreement with the ministry of Agriculture, Rural and Food affairs stipulating that the company buys fruits and vegetables directly from the more than 3,000 small producers that have agreed to apply the good agricultural practices defined and certified by the Ministry. Despite this encouraging initiative, the management of supply chains in the major brands tends to orientate the channel towards a concentration. It is indeed very difficult for small producers to group within cooperatives and at the same time to be able to meet the requirements determined by

10 - Akbay (C.), Candem (S.) and Orhan (E.) (2005), "Türkiye of Yas Meyve ve Sebze Ürünleri Üretim ve Pazarlaması", *KSU. Newspaper of Science and Engineering*, 8 (2), pp. 96-107.

11 - Anonymous (2009), "Sebze-meyve tüketiminin yüzde 80'i i kayıt dışı tüketiliyor", *Retail Turkey*, 2 April, pp. 6-16. However, the new act N 5957 of 2012 requires the registration of all fruit and vegetable sellers and buyers (farmers, retailers, agents, exporters, restaurants, hotels, etc.) on the wholesale markets website, thus enabling the regulation of the fruit and vegetable trade according to the principles of traceability.

12 - Anonymous, 2003 *Tüketici Alışkanlıkları Arastirmasi* (www.ampd.org/arastirmalar/default.aspx?SectionId=10).

13 - Akpınar (G.) (2012), "Analysing the Effects of Consumers' Demographic Characteristics on Preference for Fresh Fruit and Vegetables Supply Chains", *African Journal of Agricultural Research*, 7 (9), pp. 1442-1449.

the trade and sanitary quality standards of large-scale distribution. The fact that according to the new Turkish legislation, the purchase departments of the major brands are the first to be accused in case of consumers¹⁴ complaints, is leading hypermarket and supermarket chains to be very cautious in choosing their food and vegetable suppliers and to favour cooperation with big companies/qualified exporters according to private international standards such as Global GAP, BRC, Tesco standards or Doga Tat Carrefour. Most of the major brands have about twenty suppliers (wholesalers or agents) certified under contract. For example, Tesco-Kipa buys its fruits and vegetables from 35 regularly audited suppliers. Another major brand concerned by the compliance to the standards of sanitary quality, Metro Cash & Carry, was certified by IFS for its stores located in Antalya in April 2010. According to this logistic standard, a chain of traceability is established “from the field up to the plates” to guarantee consumers with the good commercial and sanitary quality of fresh products. The company has built big logistic warehouses in Istanbul-Gebze to receive and store large volumes of fruits and vegetables.

These changes involve important restructurings and prepare the ground for the arrival of new actors such as Mango Gıda, a company founded in 2000 by two young entrepreneurs, former carriers at Istanbul’s wholesale market. With a strong exponential development, Mango Gıda annually handles 100,000 tonnes of fruits and vegetables and supplies major brands such as Migros, Carrefour SA, Real or BIM. Today, the company owns warehouses in Istanbul, Ankara, Bursa, Antalya and Adana and develops upstream activities of the channel by renting fields and orchards in various places in Turkey and by choosing strategies of contracting with a large number of small developers¹⁵.

The arrival in Turkey, in September 2011, of the IFCO Systems N. V. is another trend to analyse. The Dutch giant which is present in 45 countries, supplies or rents from the major retail trade brands specialised in packaging for the transport and storage of fruits and vegetables. Today, the number of crates used (and rejected after use) by the major brands is estimated to over 2 million. The managers of the IFCO Turkish subsidiary aim at reaching 35 million rented crates in 2015. Besides, the establishment of an intelligent recycling method via the rental of crates, the company aims at improving hygienic conditions in the transport and storage of fruits and vegetables¹⁶. The refrigerated trucks that were only used for the export fruits and vegetables are now regularly used to supply hypermarkets and supermarkets with fresh products. The development of the sector also leads to predict the extension of labelling, packaging and modern logistics to the traditional retail trade. The fact that the in district market sellers in Ankara have begun to accept credit card payments can be considered as a step in this direction¹⁷. It is an example of an environmentally responsible economic development.

14 - In 2009, Hunkar Unlu, the person in charge of purchases at Carrefour Karsiyaka/Izmir was sued in court because of the high degree of pesticide residues detected in a batch of pears and the absence of traceability of the farmer/supplier. Interview with Hunkar Unlu at Carrefour Limited Company Karsiyaka/Izmir, 7 October 2010.

15 - Article in *Hürriyet* newspaper, 11 October 2011 (<http://hurarsiv.hurriyet.com.tr/goster/printnews.aspx?DocID=18949852>).

16 - Interview with Onur Aytekin, general director of IFCO Lojistik, *Gıda Yasam*, 26 September 2012 (www.gidayasam.com/soylesiler/6621-taze-gida-lojistikinde-ifco-devrimi).

17 - *Hürriyet Ekonomi*, 5 February 2011 (www.hurriyet.com.tr/ekonomi/16936160.asp).

Table 7 - The evolution of retail trade total sales according to different types of outlets

	2006	2010	2011	CAGR 2006-2011
Modern corner shops	28.7%	42.4%	46.2%	6.4%
Hypermarkets	3.1%	4.7%	5.6%	7.5%
Supermarkets	19.2%	25.9%	27.4%	5.2%
Discounters	4.9%	10.5%	12.0%	10.2%
Petrol station shops	1.4%	1.3%	1.2%	1.0%
Traditional corner shops	71.3%	57.6%	53.8%	– 0.4%
Independent corner shops	52.6%	42.7%	39.8%	– 0.4%
Specialized shops, buffets	18.3%	14.5%	13.6%	– 0.6%
Other types of retail	0.5%	0.5%	0.4%	0.9%
Total of food retailing (in million Turkish pounds)	98,866	117,767	124,648	2.0%

Source: Adaptations of the author based on Euromonitor International data, April 2012.

The development of international trade and its impact on transport and logistics infrastructure in Turkey

The objectives set by the government to make Turkey a hub for logistics, and thus an economic hub, will necessarily be reached through the outcome of large-scale infrastructure projects (transport and logistics) and by the modernisation of already existing transport networks (road, railroad and maritime).

Turkey is part of the European transport networks program with corridors IV and X extended to Istanbul (Centre d'analyse stratégique, 2011). Supported by European pre-accession funds, Turkey significantly invests in the construction of railroads, the electrification of the existing network and especially the connection of railroads to harbour logistic zones. Turkey is also actively involved in the TRACECA program, in the Europe-Caucasia-Asia transport corridor and is developing the railroad network connecting the East Anatolia (Kars) to Azerbaijan and Georgia. Partly financed by the European Investment Bank (EIB), another big infrastructural strategic program is the construction of the "Marmaray" tunnel and railroads, one intended for public transport and the other for the main trade transport lines under the Sea of Marmara which will connect the two shores in Istanbul in 2013 (Ersoy and Tozanli, 2012).

In the last ten years, investments were focused on the extension of the country's seaports capacity in order to meet greater traffic in connection with multimodal transport of goods. According to the 2011 Eurostat data, with about 360 million tonnes of goods (incoming and outgoing) handled in its ports, Turkey was classified 5th in this domain, behind the United Kingdom, Italy, the Netherlands and Spain. In 2011, Turkey was in the 22nd position of the World Bank rankings of container traffic in ports, with a total of 6 million TEU (Twenty Foot Equivalent Unit) handled¹⁸. Despite the progress realised since the beginning of the 2000s, the total capacity of the country's seaports is still insufficient and important investments in infrastructures are necessary (see Table 8).

Table 8 - Characteristics of major Turkish seaports

Name	Geographical Location	Managing company	Number of quays	Annual capacity (in tonnes or in TEU)
Mersin	Mediterranean Sea	MIP	21	2.5 million TEU/ 5 million tonnes
Ambarlı/ Istanbul	Sea of Marmara	Altaş A. Ş.	13	2.7 million TEU
İzmir	Aegean coasts	TCDD*	24	895,000 TEU/ 12 million tonnes
Aliaga	Aegean coast	TCDD*	12	70 million tonnes
Haydarpaşa/ Istanbul	Sea of Marmara	TCDD*	2	144,000 TEU
Bandırma	Sea of Marmara	Çelebi A. Ş.	20	150,000 TEU/ 2.8 million tonnes
İskenderun	Mediterranean	Limak A. Ş.	6	2.4 million tonnes
Samsun	Black Sea	Ceynak A. Ş.	n. c.	2.4 million tonnes
Derince	Sea of Marmara	TCDD*	7	30,000 TEU/ 6.9 million tonnes
Derince	Sea of Marmara	TCDD*	7	30,000 TEU/ 6.9 million tonnes
Trabzon	Black Sea	Alport/ Group Albayrak	6	37,000 TEU/ 5 million tonnes
Çesme Ro-Ro Port	Aegean Sea	Ulusoy Holding	2	
Çandarlı	Aegean Sea	<i>Under construction</i>		2.2 million TEU (estimate)/ 20 million tonnes

* National Turkish Railway.

Source: Adaptations of the author based on information gathered from the port managing companies on the Internet.

18 - <http://data.worldbank.org/indicators/IS.HP.GOOD.TU>

The need to invest in port infrastructure led the government to innovate management and to adopt the “build-operate-transfer” system. Thus, the management of several ports (Bandırma, Samsun, Mersin and Iskenderun) until then run by public institutions was divested to private logistics companies for a period going from twenty-five to thirty-six years. In return, these private companies plan significant investments in infrastructure aiming to increase storage and handling capacity (Ersoy and Tozanlı, 2012). Other ports (Izmir, Derince) could experience the same privatisation in the near future. The completion of the construction of the port of Çandarlı, near Izmir, considered as one of the ten biggest seaports in western Europe, provide an annual capacity of 2.2 million additional TEUs as soon as it is functional. The call for tenders for the management of this port has already been launched but the name of the managing company is not yet known.

The initiatives of establishing “logistic centres” (Ankara, Samsun, Mersin, Kars, and Iskenderun) to better manage intermodal and combined logistics is another important development project. Under the control of local authorities (municipalities, Chambers of Commerce and Industry), these investments are also financed by subsidies granted by the European Union within the framework of the pre-accession program, by local and national funds and private capital. The private sector indeed began to invest significantly in maritime transport and in harbour management through the privatization of ports that were previously managed by the Turkish State Railways (TCDD) and the maritime state companies (Denizcilik İşletmeleri) until 2005. These changes have led the biggest logistic firms of the country to opt for intermodal solutions by investing in harbour and railroad facilities.

Conclusion

The development of Turkey is increasingly based on the tertiary sector. The dynamism of the country in terms of international trade is supported by the increasing number of bilateral and multilateral free trade agreements signed since the beginning of the 2000s, but also by the investments in infrastructure to expand the road, rail and maritime networks linking Turkey to Europe, Asia and Africa, based on its unique position at the crossroads of three continents. The internal dynamics driven by private companies in the agro-industry, transport and logistics support government projects, demonstrating a well organised, efficient and promising public private partnership. It is also interesting to note that Turkey is increasingly moving towards South-South exchanges and expanding its areas of cooperation with other south-eastern Mediterranean, central and eastern European and Asian countries.

These advances will perhaps encourage western Europe to strengthen its ties with Turkey. If not a partner, Turkey may well become a formidable competitor.

Bibliography

Centre d'analyse stratégique (2011), *Le Train à grande vitesse dans le monde: perspectives d'avenir*, Report to the Prime Minister (<http://www.strategie.gov.fr>).

Deloitte (2010), *Transportation and logistics Industry Report*, Report to the Turkish Prime Minister (<http://www.invest.gov.tr>).

Ersoy (M.Ş.) (2008), "Tedarik Zincirinde Depoların Önemi" (The importance of warehousing in the supply chain), *Durum Dergisi*, Ocak sayısı, January (<http://www.turktrade.org.tr/tr/magazine/e53636bb-a261-4729-be59-4f6df32577af/ocak-2008.aspx>).

Ersoy (M.Ş.) and Tozanlı (S.) (2012), "Le secteur du transport et de la logistique en Turquie", *CIHEAM Watch Letter*, 20.

Faostat: <http://www.fao.org>

Gülen (K. G.) (2010), *Lojistik Sektöründe Durum Analizi ve Rekabetçi Stratejiler* (Overview and competitive strategies in the logistics sector), Istanbul, ITO.

Huber (C.) (2013), "Agriculture in Turkey Trade and Regional Diplomacy", *CIHEAM Analytical Note*, 69.

İGEME (2009): <http://www.ibp.gov.tr>

Kalaycıoğlu (S.) (2011), "Doğu'nun sorunlu limanları ve Türkiye" (Problematic ports of the East and Turkey), *Durum Dergisi*, Ekim sayısı, October (<http://www.turktrade.org.tr/tr/article/51198da5-d3b5-43ba-91e2-279bef1ec48e/dogu%E2%80%99nun-sorunlu-limanlari-ve-turkiye.aspx>).

Karadoğan (D.) (2011), "Türkiye'de Lojistik Sektörü ve Lojistik Hizmet Üretenler" (The logistics sector and service providers in Turkey), *Lojistikçi.com*, 22 September (<http://www.lojistikci.com/?p=3701>).

Muazzez (B.) (2003), "Lojistik Sektörünün Ülkemizdeki Gelişimi ve Rekabet Vizyonu", (The development of the logistics industry in our country and its vision for competitiveness), *Ege Akademik Bakış*, 3, pp. 1-2 (<http://eab.ege.edu.tr/pdf/3/C1-S1-2-M2.pdf>).

Ozkaya (H.) (2011), "İkili ve çok taraflı anlaşmaların Türkiye'nin ihracatı üzerine etkisi" (Bilateral and multilateral agreements on the impact of Turkey's exports), *Dogus Üniversitesi Dergisi*, 12 (2), pp. 279-288.

Ricardo (E.), Domier (P.), Fender (M.) and Kouvelis (P.) (1998), *Global Operations Management and Logistics: Text and Cases*, New York (N. Y.), John Wiley & Sons.

Turkstat: <http://www.tuik.gov.tr>

World Bank (2012), "Trade Logistics Reforms", *Viewpoint, Public Policy for the Private Sector*, 335.

