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GLOBAL PERSPECTIVES ON TURKEY

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Conventions: For measurements, Metric system with meter, kilogram, second and liter, etc. For temperature, Celsius (°C) . For dates, DD-MM-YYYY format, i.e., days are written before months. One million is 1,000,000 and one billion is 1,000,000,000.

Location: Eurasia between Black Sea, Asia, Mediterranean Sea, and Europe.

Boundaries: Black Sea, Georgia, Armenia, Azerbaijan, Iran, Iraq, Syria, Mediterranean Sea, Aegean Sea, Greece, and Bulgaria.

Terrain: High mountains (including Mount Ağrı (Ararat) 5137 m and southern Caucasus) in the north and east, Taurus mountains in the south, plains in the southeast and west; high central plateau.

Climate: Temperate with hot summers and mild, wet winters, except in the east where temperatures remain below zero for several months.

Total Area: 783,562 km² (square kilometers).

Official Language: Turkish - phonetically written in Latin alphabet without the letters X (x), Q (q) or W (w) but with the additional letters Ç (ç), Ğ (ğ), İ, Ö (ö), Ş (ş) and Ü (ü).

Official Name: Republic of Turkey and Türkiye Cumhuriyeti in Turkish.

Declaration of Republic: 29-October-1923. October 29 is the most important public holiday.

Major Provinces (Cities): Ankara is the capital, İstanbul is the financial center, and other major provinces include Adana, Antalya, Bursa, Gaziantep, İzmir, Kayseri, Kocaeli, and Konya.

Government: Unicameral parliamentary republic.

Public Holidays: January 1, April 23, May 1, May 19, August 30, October 29 are national holidays. The religious Ramadan (*Eid al Fitr*) and Sacrifice (*Eid al Adha*) holidays last three and four days, respectively.

Religion: Constitutionally secular government; the people are 99.8% Muslim, and 0.2% Christian and Jewish.

Time Zone: GMT +2 and observes daylight saving time.

Telephone and Domain Codes: +90 and .tr.

Traffic Flow: On the right, i.e., drive in the right lane and use the left lane to pass.

Electric Supply: 220 Volts and 50 Hertz.

Currency: Turkish Lira (TL).

Population: 74 million in December 2010,

GDP and Growth Rate: \$736 billion and 8.2% annually in 2010.

GDP per Capita: \$10,079 in 2010.

National Debt/GDP: 41.2% in 2010.

Inflation Rate: 6.4% in 2010.

Corporate Income Tax Rate: 20%.

Exports/Imports: \$114/\$185 billion in 2010.

Main Export Markets: Germany 10.1%; UK 6.3%; Italy 5.7%; Iraq 5.3%; and France 5.3% in 2010.

Main Import Sources: Russia 11.6%; Germany 9.5%; China 9.3%; USA 6.6%; and Italy 5.5% in 2010.

Main Data Sources: TURKSTAT (Turkish Statistical Institute www.tuik.gov.tr) and ISPAT (Investment Support and Promotion Agency of Turkey www.invest.gov.tr).

Executive Summary

With the 16th largest economy in the world, Turkey is one of the rapidly developing countries with a GDP (Gross Domestic Product) growth of 11% in the first quarter of 2011. The CIA World Factbook ⁱ classifies Turkey as a developed country, while the IMF ⁱⁱ and World Bank ⁱⁱⁱ classify Turkey as an emerging market. Saying it is not appropriate to call Turkey an emerging market, some classify her as a growth market (Hughes 2011). Turkey has accumulated some capital, e.g., İstanbul hosting 28 billionaires is ranked the 4th worldwide, after New York, London and Moscow (Obusan 2010). The Economist (2010) predicts that “over the next seven years Turkey’s growth will match or exceed that of any other big country except China and India”.

Turkey is the third populous country in Europe and Eurasia behind Russia and Germany. She is strategically located among developed European countries, energy rich Russian and Turkic Republics, and developing Middle Eastern countries. This crossroad location has allowed Turkey to play the role of a trade and culture bridge. In addition, Turkey has become a competitive good manufacturer. Manufacturing comprises the largest component of Turkey's GDP at 17%. The other significant sectors are transportation and trade.

Many multinational companies run extensive operations in Turkey, manufacturing plants are typically co-owned with local Turkish companies in the form of a joint venture. Some of these joint ventures were established several decades ago to cater to the domestic Turkish market. During the past one or two decades, these plants have adopted the latest technologies and become sources of manufactured goods aimed for exports. These changes have pulled Turkish annual exports above the \$100 billion mark. This is not an impressive number in itself in view of Turkey's size, but the rate of export growth during the current global financial crisis is noteworthy.

By many measurements, Turkey is still a developing country -- undergoing industrialization and urbanization. Her population is young with a median age of approximately 30 and her youth is fairly well-educated. Despite these competitive advantages for a rapid economic development, Turkey had lacked necessary regulations (for privatization, investment, foreign trade, and banking), as well as country-wide macro-economic and political stability. Following the implementation of sound policies since the 1980s, the domestic institutions and conditions have improved and led to recent economic successes.

Among the domestic conditions that have significantly improved are expanded and modernized infrastructure via a significant portion of the Turkish budget allocated to airports, seaports, toll-ways, high-speed trains, power plants, and communication lines. In order to speed up these projects, Turkey is eager to cooperate with domestic and foreign private investors under international norms and regulations. Experienced Turkish construction companies are

successfully completing infrastructure projects not only in Turkey but also throughout the region. On completion, these projects will provide fast and easy channels for the flow of people and goods in Eurasia and beyond.

Logistics activities (transport, storage, and communication) constituted 15% of Turkey's GDP in 2010. Roughly one-third of the logistics market belongs to Turkish 3PL firms. Many of these firms are mature as they have been operational for at least a decade and improving their customer service. Due to a combination of this maturity and recessionary pressure, 3PL customers currently tend to ask for lower logistic costs over more services. From 2009 to 2010, the revenues for logistics firms on the Turkish Fortune 500 list have increased more than the average iv. This revenue increase and Turkish economic growth can further increase the size of the domestic logistics market and help 3PLs become more cost competitive via economies of scale.

The Turkish economy has challenges. Although it proved to be resilient by recovering from the 2008 global financial crisis and surpassing 2008 activity levels, exports have not grown as fast as imports. This has created a trade deficit that is higher than what is healthy for growing economies. The deficit can further expand as a consequence of the financial crisis impacting Turkey's trade partners in Europe unless alternative partners can be found elsewhere. The domestic demand can similarly contract if a liquidity crisis occurs in the global capital markets and Turkish banks significantly cut consumer credits. Turkey imports a significant portion of her energy -- a drastic increase in energy prices can easily render Turkish goods too expensive to compete in global markets. The Turkish judiciary system has failed to keep up with economic developments and risks dropping further behind, particularly in terms of processing speed. Barring these concerns, as an EU candidate and member of OECD, NATO, IMF, and the Council of Europe for over half a century, Turkey has the will, infrastructure, capital (human, monetary, and social), reasonable institutions and regulations required to develop further.

Section 1. Characteristics

Geography: Turkey is located at the center of the old world (continents of Asia, Africa and Europe). The Turkish land mass, including areas in Asia and Europe called Anatolia and Thrace, forms a bridge between these continents. Turkish waterways, including the İstanbul and Çanakkale straits, and Sea of Marmara, connects Black Sea in the north with the Mediterranean Sea in the south. These seas surround Anatolia and Thrace rendering them peninsulas. High mountains, e.g., Mount Ararat (Ağrı), Süphan, and Erciyes, support the roof of the country. Turkish rivers (e.g., Kızılırmak, Fırat, Dicle, Seyhan, and Sakarya) water plains and reach out to seas or other countries.

Anatolia has a high central plateau surrounded by mountains in the north, east and south. The northern and southern mountain ranges are Black Sea and Taurus mountains that respectively kneel down to Black and the Mediterranean Seas. In the east, the mountains rise further, embracing Mount Ararat and then joining the Caucasus Mountains. In the west, the mountains morph into fertile plains and then drop further to encounter Aegean Sea. These mountains create microclimates. Swimming and skiing is possible within 40 km of the city of Antalya on

the Mediterranean coast. Cotton (a warm climate crop) grows on the Iğdır plateau next to Mount Ararat. Slightly to the northwest of the Iğdır plateau, temperatures can reach 30 °C to 40 °C below zero and snow remains on the ground for three to four months per year. Mountains are also roadblocks that were difficult to surpass prior to the construction of the Turkish highway and railway network.

History: Anatolia has housed many cultures since the pre-historic times: from Neolithic ones in Çatalhöyük, to the following Hittites, Trojans, Greeks, Romans, Celts and Persians. Turks had established the Seljuk and Ottoman Empires prior to the Republic of Turkey. Despite spanning the three continents of the old world in its heyday, reform attempts in 1839 and the establishment of parliament in 1876, the Ottoman Empire regressed and collapsed following World War I. The parliament of the Turkish Republic was established on 20-April-1920 and a republic was declared on 29-October-1923 -- both dates are national holidays. An instrumental figure at the Gallipoli campaign and an avid reformer, Atatürk (Father of Turks) became the first president of the republic.

None of the Ottoman reforms had been as broad or successful as those implemented during Atatürk's presidency. The latter reforms dealt with social issues (women rights and dress code), religious issues (secularity and abolition of the Caliphate), legal code (based on the continental European system), educational reforms (unification of school system upon the abolition of parochial schools and replacement of the Perso-Arabic script with a version of Latin alphabet extended with vowels). Consequently, Turkish women took their place in the society, e.g., Sabiha Gökçen became the first female Turkish pilot in 1930s and the namesake of the fastest growing Turkish airport 70 years later. Democracy, sovereignty and equality of people, secularity, and the separation of powers became important articles of the Turkish constitution. These reforms resulted in the establishment of an educated middle class forming pillars that Turkish society rests upon today.

Completing internal reforms before World War II, Turkey focused more on international arena afterwards. Turkey became a founding member of the United Nations in 1945, a member of the IMF in 1947, a member of the Council of Europe in 1949, a NATO member in 1952, a founding OECD (Organization for Economic Co-operation and Development) member in 1960, an associate member of the EU (European Union) in 1963, a member of the OIC (Organization of Islamic Cooperation) in 1969, a member in the OSCE (Organization for Security and Co-operation in Europe) in 1973, a founding member of the BSEC (Black Sea Economic Cooperation) in 1992, a member of the WTO (World Trade Organization) in 1995, a member of the G-20 (Group of Twenty) in 1999, and a founding member of the CCTS (Cooperation Council of Turkic Speaking States) in 2009. Turkey is currently in the process of accession negotiations with EU to become a full member.

Politics: Turkey is a unitary state with a parliament called Türkiye Büyük Millet Meclisi (TBMM). The TBMM is in its 24th legislation cycle since 1920 and has 550 parliamentarians elected from Turkey's 81 provinces. Parliamentarians are elected in a general election whose winner is asked by the president to establish a cabinet of ministers. This winner becomes the prime minister following the approval of the cabinet in the TBMM. Loosely decoupled due to

this process, the TBMM and the cabinet are responsible for legislation and execution, respectively.

There are four major political parties in Turkey: the Justice and Development Party (AKP), the Republican People's Party (CHP), the National Movement Party (MHP), and the Peace and Democracy Party (BDP). The AKP is socially conservative and economically liberal, it can be thought of as a Muslim Democrat Party similar to the Christian Democrat Parties in Europe. The AKP has been in sole power since 2002. The MHP is also conservative, but nationalist. The CHP is a social democrat party, while the BDP leans further left.

Demographics: In 2010, the Turkish population is 73.0 million and the fertility rate is 2.06 per woman. This rate was 2.37 in 2001 and has a decreasing trend. Despite this decrease, the population is increasing at a rate approximately 1.45% per year. The increase is not uniform over all regions. The population is rising at a faster rate in southern regions than it is dropping in northern regions. The population density is 96 people per km² in 2010, this figure is higher in the west, and in some pockets in the north and south. At 76%, most of the population live in provincial or district centers. 80% of Turkish households are made up of a nuclear family (parents and children). 13% and 6% respectively include extended families and single individuals.

The median age is 29.22. For every 100 people aged between 15 and 64, the number of people above 65 is called the elderly dependence ratio. This ratio is 10.76 in 2010. Again in 2010, for every 100 people aged between 0 and 49, the number of people between 50 and 69 is slightly less than 20%. In other words, the elderly dependence ratio will be approximately 20% in 2025. These are sustainable numbers that do not pose a significant challenge for the Turkish pension systems. These and more detailed demographic statistics are available from TURKSTAT.

Health and Education: The WHO (World Health Organization) reports male and female life expectancies as 72 and 77 years respectively in 2011. The immunization rates of children is approximately 95%. The mortality rate for children under five years old is 13 per 1000 live births. These statistics are on par with other countries in the WHO's European region. The health system includes state, university and private hospitals.

The first eight grades are compulsory and over 98% of children finish primary education according to TURKSTAT. Approximately 70% finish secondary education. In 2010, approximately 400 and 263 thousand students graduated from respectively general and vocational high schools respectively. Both primary and secondary education is free at state schools. Private schools exist and they graduated 25,000 high school students in 2010. Many private schools have curricula in foreign languages and some (31 in 2011^v) can offer International Baccalaureate certification. All schools are regulated by the Ministry of Education.

Turkish universities, whether public or private, are supervised by the YÖK (Higher Education Council www.yok.gov.tr). As of 2010, there are more than 150 universities and one-third of these are private. Despite the oversight of the YÖK, the quality of universities varies. This variation is higher among private universities, which include both world-class research institutions and others.

Research and Technology: The Turkish government made research a priority in the 1990s and increased its research and development budget sixfold from 1995 to 2007. Over this period, the number of researchers and publications rose by 43% and 300% respectively. Moreover, this progress was primarily achieved due to domestic projects rather than international collaborations. The Royal Society (2011) mentions: "[a]s a proportion of national output, the rapidly growing scientific nations are collaborating less than most of their ‘developed’ counterparts. China, Turkey, Taiwan, India, South Korea and Brazil produce over 70% of their publications from national researchers alone." Furthermore, Turkey ranked 18th worldwide in terms of the number of publications in 2010 (SCImago 2011). Research and technology related institutions include the TÜBİTAK (www.tubitak.gov.tr), the TTGV (www.ttg.gov.tr) and the KOSGEB (www.kosgeb.gov.tr), which respectively focus on basic research, technology development, and technology transfer to small and medium-sized companies. From upstream to downstream, the TÜBİTAK, the TTGV and KOSGEB are the echelons of the Turkish knowledge supply chain.

Section 2. Economic Overview

The Turkish GDP has grown substantially in nominal prices during the last decade while the exchange rate between TL and US dollars (\$) remained stable; see Table 2.1. From 2002 to 2010 the compound annual growth rate (CAGR) of Turkey’s GDP measured in constant prices is 4.8%. This rate is 4.7% for Russia, 4.5% for Poland, 4.0% for Brazil, 3.8% for South Korea, 2.3% for Croatia, and 2.2% for Mexico. The government’s debt stock as a percentage of the GDP (required to be at most 60% according to the EU’s Maastricht Criteria) is 41.6% for Turkey in 2010 and has remained below 60% since 2004. The Turkish budget deficit is 3.3% of the GDP in 2010. These statistics are from the IMF World Economic Outlook (2011), which also estimates Turkey’s GDP to reach 1,810 billion TL by 2015.

Table 2.1: Turkish GDP Growth (GDP is in millions of TL; population is in millions; population and \$/TL are midyear (approximately July 1) numbers).

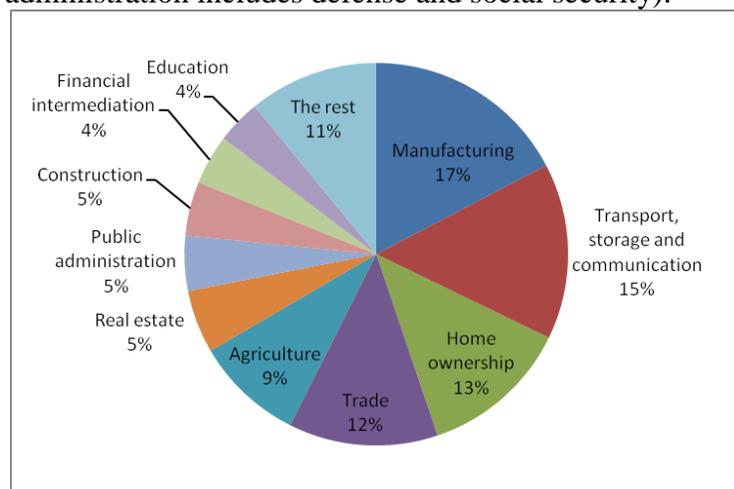
| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| GDP | 350 | 455 | 559 | 649 | 758 | 843 | 951 | 953 | 1,105 | 1,265 |
| Population | 66.0 | 66.9 | 67.7 | 68.6 | 69.4 | 70.2 | 71.1 | 72.1 | 73.0 | 73.9 |
| \$/TL | 1.569 | 1.408 | 1.481 | 1.334 | 1.570 | 1.305 | 1.219 | 1.525 | 1.574 | 1.616 |

Source: GDP and Population data from TURKSTAT. \$/TL exchange rate data from Turkish Central Bank. 2011 GDP from IMF World Economic Outlook (2011).

A. Sectors

Along with the GDP growth over the last decade, the *sector total* (contribution of all economic sectors) has increased drastically. The sector total does not account for indirectly-measured financial intermediation services or subsidies that constitute 0.15% of the GDP during the first quarter of 2011. The sector total was 987 billion TL in 2010 and is expected to surpass 1 trillion TL in 2011. Figure 2.1 shows the ten largest sectors in 2010 and their contributions.

Figure 2.1: Sector Shares of GDP in 2010 (agriculture includes hunting and forestry; public administration includes defense and social security).



Source: Data from Turkey’s Statistical Yearbook (2010).

In addition to 17% and 5% contributions from the manufacturing and construction sectors respectively in Figure 2.1, the power generation and mining sectors respectively contribute 2.6% and 1.6% of the GDP. The *production sector* (manufacturing, construction, power generation, and mining) accounts for approximately 27% of the GDP, the service sector accounts for 64%, and agriculture’s contribution to the GDP is 9%. The manufacturing, transport, storage, communication, and trade sectors make up 44% of the sector totals in 2010, constituting the backbone of Turkish supply chains.

Manufacturing and Services: Turkey’s manufacturing sector covers various subsectors. In order to demonstrate the granularity of the available data, the production volumes for selected subsectors are listed in Table 2.2.

Table 2.2: Sample Products and Volumes from Manufacturing Sector in 2010.

| Subsector | Product | Volume | Product | Volume |
|---------------------------------|----------------|------------------------|------------|----------------------------|
| Minerals in tons | Lignite | 74,437,425 | Crude Oil | 2,602,115 |
| Food in tons | Processed Milk | 940,963 | Biscuits | 563,823 |
| Beverages in 1000 liters | Wine | 30,520 | Beer | 1,024,047 |
| Textile-Related | Yarn | 711,446 tons | Carpets | 127,717,767 m ² |
| Wood | Plywood | 117,196 m ³ | Fiberboard | 186,420,305 m ² |
| Paper in tons | Corrugated | 671,265 | Paperboard | 707,063 |
| Petroleum in tons | Gasoline | 3,882,777 | LPG | 683,282 |
| Chemicals in tons | Polymers | 438,589 | Detergents | 1,198,148 |
| Tires in units | Truck/Bus | 6,413,661 | Automobile | 17,991,185 |
| Glasses | Industrial | 719,126 ton | Security | 19,040 m ² |
| Iron & Steel in tons | Iron | 7,676,592 | Steel | 29,029,789 |
| Durables in units | Refrigerators | 7161530 | TVs | 9,209,551 |
| Automotive in units | Truck | 20,119 | Automobile | 885,135 |

Source: Data from Turkey’s Statistical Yearbook (2010).

The major Turkish business indices take 2005 levels as 100 and report the following years in relative terms. The industry production indices were 107.3, 114.8, 114.2, 102.9, and 116.4 respectively in 2006, 2007, 2008, 2009, and 2010. The index decreased somewhat in 2008 and 2009 due to the global financial crisis. It has recovered strongly in 2010 and is expected to improve even further in 2011. The industrial employment index has not improved so much as it remained on par with 2005 levels. This stability despite increasing production is an indicator of higher labor productivity and/or automation. This observation remains valid for the service indices listed in Table 2.3.

Table 2.3: Revenue and Employment Indices for Service Sector.

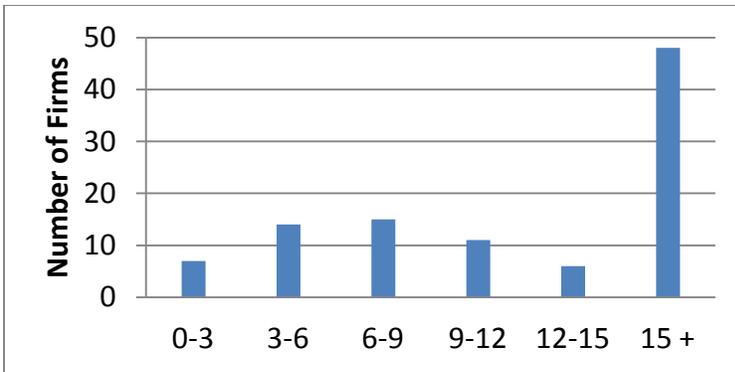
| Service indices | 2006 | 2007 | 2008 | 2009 | 2010 |
|--|-------|-------|-------|-------|-------|
| Wholesale & Retail - Revenue | 114.6 | 126.9 | 136.0 | 133.8 | 161.8 |
| Wholesale & Retail - Employment | 107.4 | 112.5 | 115.6 | 109.6 | 111.2 |
| Transportation & Storage - Revenue | 120.9 | 135.7 | 137.2 | 132.6 | 150.6 |
| Transportation & Storage - Employment | 108.8 | 112.6 | 105.7 | 102.1 | 103.9 |
| Accommodation & Food - Revenue | 115.5 | 118.6 | 156.2 | 144.0 | 153.1 |
| Accommodation & Food - Employment | 106.6 | 109.4 | 110.3 | 99.0 | 99.1 |
| Information & Communication - Revenue | 108.7 | 122.2 | 131.7 | 131.0 | 141.3 |
| Information & Communication - Employment | 96.7 | 96.5 | 95.1 | 88.4 | 90.5 |
| Professional & Scientific & Technical - Revenue | 126.8 | 147.2 | 124.3 | 104.0 | 123.7 |
| Professional & Scientific & Technical - Employment | 109.6 | 114.2 | 124.5 | 108.4 | 106.1 |
| Administrative & Support - Revenue | 129.2 | 140.5 | 165.3 | 170.1 | 179.0 |
| Administrative & Support - Employment | 119.4 | 123.4 | 131.3 | 125.9 | 136.6 |

Source: Data from Turkey's Statistical Yearbook (2010).

Logistics and 3PLs: Transportation, storage, and communication not only generated 15% of the GDP in 2010, but also employed approximately 1.1 million people in 2009. This is not surprising since Turkey has one of the largest truck fleets in Europe. The Worldbank Logistics Performance Index (2011) ranked Turkey 39th among 155 countries. Among the ranked categories Turkey received the lowest score in its customs clearance efficiency, which can improve by following the recently introduced e-government customs initiative GÜVAS^{vi}.

The growth of 3PLs in recent years has been interrupted by the global financial crisis. According to a Logistics Industry Survey (Quattro Business Consulting 2008), during 2002-2007, size of Turkey's logistics industry expanded threefold and reached \$59 billion. 82% of 3PL firms own a depot, and 48 have been in business for 15 or more years; see Figure 2.2. 37% of the logistics market belongs to 3PLs, while the remainder is handled by non-logistics firms' in-house capabilities (Kaya and Haksöz 2011).

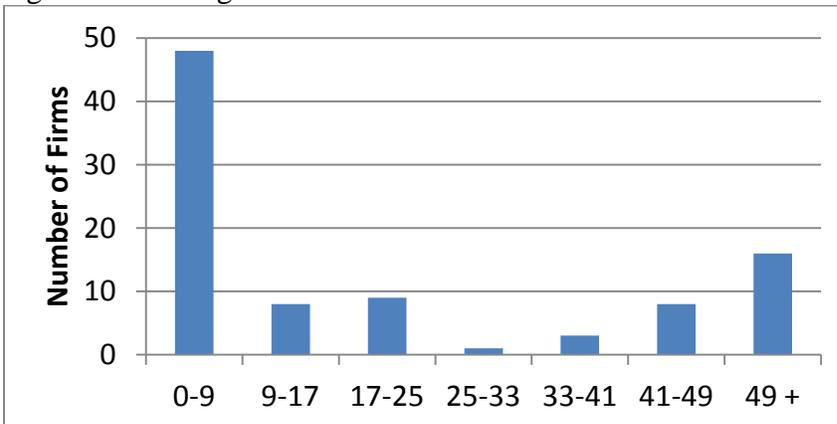
Figure 2.2: Histogram of 3PL (firm ages in years).



Source: Data from (Başev 2011).

69%, 24%, and 7% of the logistics market belongs respectively to Turkish-owned, international, and joint venture firms (Başev 2011). Some relatively large 3PL companies are Balnak (www.balnak.com.tr), Barsan (www.barsan.com.tr), Borusan Lojistik (www.borusanlojistik.com), Ekol (www.ekol.com), Horoz (www.horoz.com.tr), Omsan (www.omsan.com.tr), and Reysaş (www.reysas.com). These firms do not collectively earn the majority of 3PL industry revenues since the industry is currently quite fragmented; see Figure 2.3. In 2008 13 merger and acquisition transactions (six involving foreign companies) valued at approximately \$328 million took place (Akkaş 2010). Customer pressure for lower prices and higher efficiency may result in further consolidation among 3PL companies.

Figure 2.3: Histogram of 3PL-Firm Annual Revenues in Million US Dollars.



Source: Data from (Başev 2011).

Agriculture: The land usage for crops does not show strong trends, and accordingly only 2009 numbers are reported here. Sown area: 16,217, fallow area: 4,323, vegetable gardens: 811, vineyards: 479, areas of fruits and spice crops: 1,686, areas of olive trees: 778, meadows and pastures: 14,617, forests: 21390; all numbers are in thousand hectares. The main crops are wheat, barley, potatoes, lentils, and tobacco; vegetables are tomatoes, peppers, beans, melons, and cabbage; fruits are grapes, oranges, peaches, apricots, and olives. Turkey’s variety of crops, vegetables, fruits encompasses approximately 75% of the total plant species in Europe (Convention on Biological Diversity 2011), demonstrating remarkable biodiversity.

Turkey's livestock included 21,749, 10,723, and 5,128 thousand sheep, cattle, and goats respectively in 2009. Despite the increasing human population, both cattle and sheep populations have dropped since 2007. Meat production has also dropped during the same time period to 412,621 tons. These drops are not recent, but represent a continuation of trends since the 1980s. This can be attributed to increasing livestock feed prices, the reduction of pastures and meadows, the lack of a consistent agriculture policy at the national level (Kutlu 2003), and an industrial shift from agriculture to industry.

Financial Sector: 49 banks exist in Turkey as of August 2010: 32 commercial banks, 13 investment banks, and four participation banks. Only four banks are state-owned; 17 retail banks (involved in deposit taking) are majority-owned by foreign investors. These include foreign owned banks such as Denizbank (by Dexia), Türk Ekonomi Bankasi (by BNP Paribas), ING Bank, HSBC, and Fortis Bank. The total financial sector assets are valued at 1,222 billion TL as of June 2010. As of 2009 the Turkish financial sector assets correspond to 140% of the Turkish GDP. The same ratio for Japan, the USA, and China are 1,163%, 811%, and 505% respectively. Even from the perspective of the current and future asset write-offs in Japanese, American, and Chinese banks, the Turkish banking sector has a comparatively low asset-to-GDP ratio; this indicates a high potential for growth. This potential has recently increased the appetite of foreign banks and resulted in a number of transactions toward acquiring interests in domestic banks.

Turkey has 463.9 billion TL of assets in outstanding loans as of August 2010. Approximately one third of these are personal loans for housing (including growing mortgage loans following the 2007 mortgage regulations), automobile, and durable or semi-durable consumer goods. There are 67.4 million debit cards and 46 million credit cards in the country. The latter number makes Turkey the third largest credit card market in Europe after the United Kingdom and Spain. The penetration rate of debit cards is 92.3%. In order to handle the growing number of card and online transactions Turkish banks have invested in their technology and infrastructure; these are now on par with those in the developed countries.

Unlike banking, the Turkish insurance sector is relatively small. The insurance premiums were 1.3% of the GDP in 2009; the corresponding average numbers for the EU and OECD are 8.4% and 8.2%. With soaring mortgage loans, credit insurance can grow faster than casualty insurance. An individual (private) pension system began in 2003. Despite being relatively small, it complements the public social security system. For more information on banking and insurance see the Turkish Financial Services Industry Report (2010).

Tourism: Turkey's rich topography (coast line and mountains), history, and welcoming culture, make it a major tourist destination. İstanbul was selected by the European Commission as the European Capital of Culture in 2010. According to the number of arrivals from abroad in 2010, the UN's World Tourism Organization (<http://unwto.org/en/country/turkey>) lists Turkey as seventh worldwide. TURKSTAT reports 28.6 million international and 10.9 million Turkish arrivals; 4.4, 3.1, and 2.7 million visitors came from Germany, the Russian Federation, and the UK respectively. The Turkish Tourism Industry Report (2010) mentions that tourism (domestic and international along with the travel sector) generates up to 10% of Turkey's GDP.

B. Labor Availability, Education-Level, and Cost

As of April 2011 TURKSTAT reports a workforce of 26.6 million individuals and an unemployment rate of 10%. 70% of the workforce is male and the unemployment rate among males is 9.5%. The unemployed search for jobs for approximately three months on average. Workforce and unemployment numbers are provided by education level in Table 2.4; higher education refers to some university education, including two-year or associate's degrees.

Table 2.4: Workforce Availability in April 2011 (workforce numbers are in thousands).

| Males | | | | Females | | | |
|---------------------|-------------------|------------------|-------------------|---------------------|-------------------|------------------|-------------------|
| High School or Less | | Higher Education | | High School or Less | | Higher Education | |
| Workforce | Unemployment Rate | Workforce | Unemployment Rate | Workforce | Unemployment Rate | Workforce | Unemployment Rate |
| 16,083 | 10.1% | 2,671 | 6.1% | 6,232 | 10.0% | 1,606 | 14.2% |

Source: TURKSTAT.

The minimum monthly wage is 837 TL per month in 2011. The average monthly labor cost is higher and varies by sector. A sample of these averages, their changes from 2004 to 2008, and the social security portion of labor costs are listed in Table 2.5.

Table 2.5: Labor Cost in 2008.

| Sample Sectors | Monthly Labor Cost in TL | Change in Past Four Years Since 2004 | Social Security Payments |
|-----------------------------------|--------------------------|--------------------------------------|--------------------------|
| Manufacturing | 1,576 | 39% | 18.9% |
| Transport, Storage, Communication | 2,558 | 45% | 19.2% |
| Wholesale and Retail | 1,725 | 50% | 16.9% |
| Construction | 1,055 | 14% | 18.2% |

Source: TURKSTAT.

In 2009 there were approximately 100 labor unions (mostly in manufacturing, transportation, communication, and storage) in Turkey, and 1219 public and 433 private collective agreements. 13 strikes resulted in a loss of 209,913 workdays. On the other hand, 11 strikes caused a loss of 37,762 workdays in 2010 (Turkish Statistical Yearbook 2010). Turkish unions come together under the umbrella of the Türk- İş (Confederation of Turkish Labor Unions www.turkis.org.tr). Unions negotiate and cooperate with the Ministry of Labor and Social Security (www.cshb.gov.tr) in order to improve the regulations governing working conditions and occupational safety.

C. Regulatory Environment

Under the Turkish Constitution all individuals are equal before the law, irrespective of language, race, color, sex, political opinion, philosophical belief, religion or sect, or any similar considerations. Foreigners enjoy the privileges of Turkish citizens except for certain

considerations. Information on obtaining visitor visa, work permits, and residency status is available online^{vii}.

Turkey has a liberal economy regulated by several governmental and non-governmental bodies. The Competition Authority (www.rekabet.gov.tr) ensures that business transactions (mergers and acquisitions in particular) do not severely undercut competition in order, limit capital flows or disadvantage participants of the free economy. The Banking Regulation and Supervision Agency (www.bddk.org.tr) maintains the stability of the banking sector and protects the rights of depositors. The Energy Market Regulatory Authority (www.epdk.gov.tr) regulates energy markets (electricity, natural gas, oil, and liquid petroleum gas) in order to ensure efficiency, transparency, and financial stability. The Telecommunications Authority (www.tk.gov.tr) regulates and authorizes various telecommunication activities related to technology, infrastructure, performance standards, and network interconnections. The Capital Markets Board of Turkey (www.cmb.gov.tr) regulates and supervises security markets with the goal of enhancing investor protection and adopting the norms of international markets.

Among these bodies the Banking Regulation and Supervision Agency is perhaps the most praiseworthy in view of the 2008 global financial crisis. Turkey experienced a banking and liquidity crisis in 2001. Many blamed this crisis on the fragile banking system structure, unsuccessful government policies in sustaining capital inflows, insufficient backing by the IMF, and unfavorable external global economic conditions (Alper 2001). Major financial reforms have been implemented following the liquidity crisis of 2001 in order to improve banking regulatory structures via stricter regulations and strengthening bank balance sheets using higher reserve requirements. Vaccinated by the 2001 crisis, Turkish banks demonstrated a strong resilience during the global financial crisis of 2008 and did not suffer as much as their counterparts in other countries. The Banking Regulation and Supervision Agency also oversees the interpretation and application of Basel accords in Turkey. As of 2010 it has become mandatory in Turkey to use the IBAN (International Bank Account Number) of both beneficiary and sender accounts for money transfers. This will be extended to all inter-bank transfers at the beginning of 2012 (Financial Stability Report 2011).

Environmental issues are overseen by the Ministry of Forestry and Waterworks (www.ormansu.gov.tr). Initiatives undertaken by the public sector include protection of the ambient air and climate, waste management, protection of biodiversity and landscape, and protection of soil and groundwater. The cost of these initiatives in 2009 was 1,335 million TL according to TURKSTAT. Another 8,377 million TL is spent by Turkish municipalities that are required by law to build waste management facilities and protocols. The government offers cheaper electricity to industrial plants if they also build waste treatment facilities. However, Turkey still requires the construction of additional facilities in order to fully meet the EU's environmental requirements (Turkish Environmental Technologies & Renewable Energy Industry Report 2010).

Greenhouse gas (GHG) emissions in Turkey were approximately 369 million tons (carbon dioxide equivalent). 80% of this amount is carbon dioxide (the remainder is methane, sodium dioxide, and F-gases), and 75% of greenhouse gases are emitted by the energy sector. In 2008 the GHG per capita was 5.2 tons (carbon dioxide equivalent); the same statistic is 9.9 for the

EU^{viii}. The air quality is monitored by over 100 stations dispersed in the country and published daily^{ix}. Turkey's 1650 cubic meter water supply per capita in 2009 means the country is facing a water shortage. (Turkish Environmental Technologies & Renewable Energy Industry Report 2010). This is one area where immediate regulation and financing is necessary in order to increase the efficiency of water usage and recycling.

International Agreements: As a member of the OECD, WTO, and as a part of EU accession negotiations, Turkey has signed many international agreements. These agreements establish the norms for economic cooperation, commerce, and customs. Turkey has bilateral investment promotion and protection agreements with 82 countries, double taxation prevention treaties with 71 countries, social security agreements with 21 countries, customs unions with the EU, and free trade agreements with 16 countries. These numbers will increase as some agreements are currently in negotiation^x.

Turkey is a member of the World Intellectual Property Organization (WIPO) and the European Patent Convention; it has signed treaties including the Patent Law and Trademark Law. An overview of Turkish laws on intellectual property is available online^{xi}.

Turkey has bilateral agreements with its partners to trade in either Turkish Lira or the partner's currency. Examples are trade with China in TL or Yuan, and with Russia in TL or Rubles. This limits the currency risk exposure of trade to fluctuations in the values of other currencies.

In order to facilitate the free flow of people and goods around the Black Sea region Turkey has played a central role in establishing the BSEC (Black Sea Economic Cooperation www.bsec-organization.org). Members of the BSEC value the importance of cooperation among neighbors. The BSEC has several MoUs (Memoranda of Understanding) dealing with the facilitation of goods transportation, reducing visa requirements, and combating crime. In a similar vein, the CCTS (Council of Turkic Speaking Countries) promotes interaction, information exchange, and cooperation among its members including Azerbaijan, Kazakhstan, and Kyrgyzstan. Separately, Turkey has bilateral trade and cooperation agreements with CCTS members. Turkish laws and regulations as well as foreign treaties are all available in Turkish at a database of regulations^{xii}, and are also accessible from the Ministry of Economy website (www.ekonomi.gov.tr).

Investing in Turkey: Liberal economic policies of for over three decades have limited the state's role in the economy. Existing programs aim to further limit this role to education, healthcare, transportation, telecommunication, and energy infrastructure, and defense. In this line, the Privatization Administration (www.oib.gov.tr) identifies and executes the sale of state assets to domestic or foreign investors. Two current important projects are privatizations of Halkbank and the Domestic Electric Generation and Distribution Network.

The ISPAT is an excellent starting point to learn about regulations, particularly those concerning foreign investments. The ISPAT's website includes an Investor's Guide that covers topics such as establishing a business, asset transfer, financing, and incentives. Incentives are generally in terms of tax rate reductions depending on the type of investment and the location in Turkey; for example, incentives are higher for investments made in eastern Turkey. The ISPAT

reports foreign direct investment to Turkey amounting to \$ 9.1 billion in 2010, down from \$22 billion in 2007.

Section 3. International Trade

Turkish exports and imports correspond to approximately 15 to 25% of the GDP, a relatively low percentage that reflects the size of the domestic market. However, this percentage multiplied by a GDP value that is ranked 16th worldwide yields approximately \$300 billion in foreign trade during 2010. Foreign trade is currently experiencing a growth trend; see Table 3.1.

Table 3.1: Exports, Imports, and Trade Balance (in millions of US dollars).

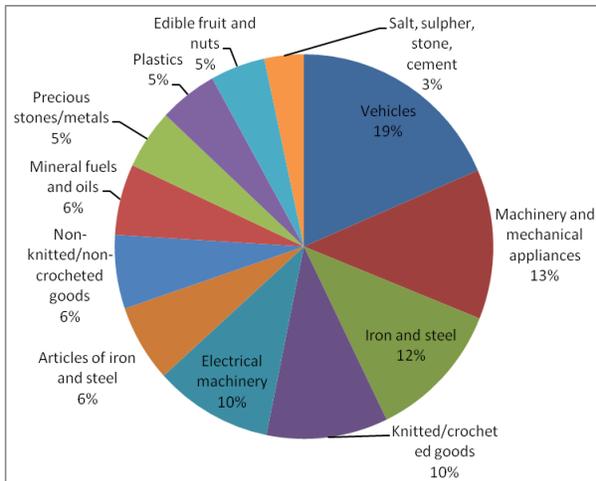
| | 2006 | 2007 | 2008 | 2009 | 2010 |
|-----------------|---------|---------|---------|---------|---------|
| Exports | 85,534 | 107,271 | 132,027 | 102,142 | 113,883 |
| Imports | 139,576 | 170,062 | 201,963 | 140,928 | 185,544 |
| Exports/Imports | 61.3% | 63.1% | 65.4% | 72.5% | 61.4% |
| Trade balance | -54,041 | -62,790 | -69,936 | -38,785 | -71,660 |

Source: TURKSTAT.

In addition to the size of foreign trade, Table 3.1 shows the persistent trade deficit with more imports than exports. 1946 was the last year experiencing a trade surplus. When the deficit is small (3 to 4% of the GDP), it can be compensated for via revenues from international tourism and construction projects, as well as foreign direct investment. It can even be economically argued that Turkish deficits of 5 to 6% stimulate the economy, and are therefore not entirely undesirable. However, the deficit in 2010 is approximately 9% of the GDP -- a substantial risk factor for the economy. A portion of the deficit is financed by short-term capital inflows. The Turkish Central Bank notes (Financial Stability Report 2011) that, “the divergence between growth dynamics of advanced and emerging economies accelerates capital inflows to ... Turkey”. It further points to its, “policy mix consisting of low policy rate and higher reserve requirement ratios [for banks], with a view to containing the rise in credits and current account deficit”. These policies can reduce the trade deficit while simultaneously increasing the value of foreign currencies against Turkish Lira.

Export Categories: In 2010, 98 categories of items were exported and their total value was \$113,883 million. The top 12 categories out of 98 generated \$74,648 million, corresponding to approximately 66% of exports. The pie chart in Figure 3.1 shows the contribution of each of the top-12 categories to 66% of exports. For example, the category of vehicles makes up 12.5% (19% multiplied by 66%) of total exports. The other percentages in Figure 3.1 can be interpreted similarly.

Figure 3.1: Top-12 Categories within 66% of Exports.



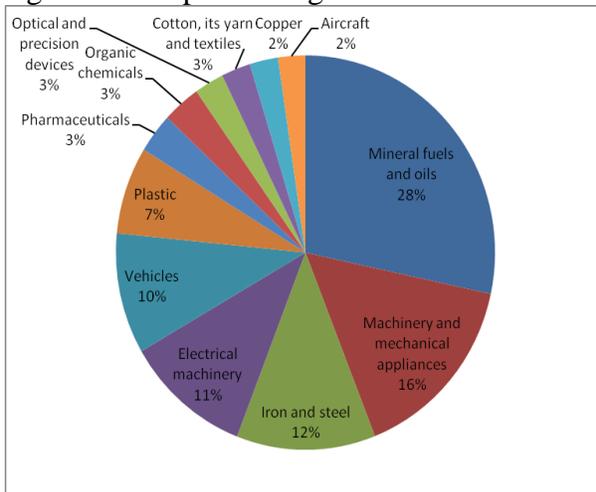
Source: Data from TURKSTAT.

Five of the top six export categories in Figure 3.1 are from non-textile industries: vehicles, machinery and mechanical appliances, iron and steel, and articles of iron and steel. Textile categories make up 10.5% ((6% plus 10%) multiplied by 66%) of exports in 2010. This percentage was 12.5% in 2007. Exports seem to be switching from textile to non-textile and manufacturing categories.

The ISPAT reports exports by economic activity, providing a more aggregate categorization than the TURKSTAT categories in Figure 3.1. The contribution of agriculture and forestry, fishery, mining and quarrying to exports is \$7,744 million or a mere 6.8% in 2010. The remaining exports are 93.2% from manufacturing categories.

Import Categories: Imports in 2010 were \$185,544 million; 73% of that figure was from the top 12 import categories. Figure 3.2 shows the contribution of each category to the 73% of imports. The interpretation of percentages in Figure 3.2 is the same as that of the percentages in Figure 3.1. The biggest portion of imports (\$38,497 millions) is mineral fuels and oils. This category includes oil and gas that are necessary to fuel Turkish energy needs.

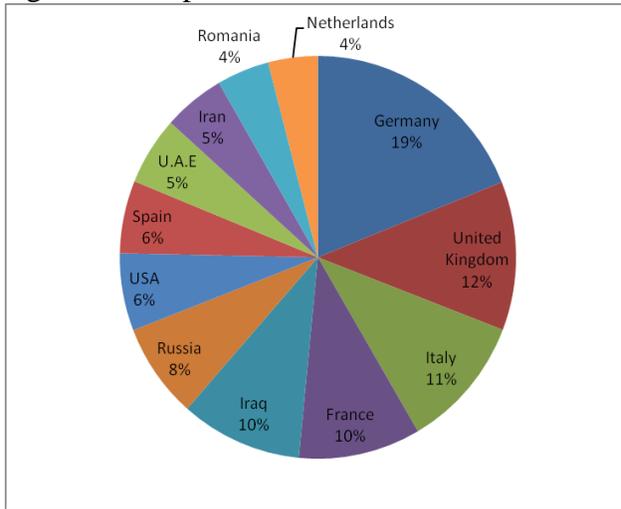
Figure 3.2: Top-12 Categories within 73% of Exports.



Source: Data from TURKSTAT.

Trade Partners: Turkish exports to Germany in 2010 were worth \$11,479 million and constitute the largest bilateral exports. The top 12 export partners of Turkey purchased \$60,676 million worth of goods, or 53% of exports. These top-12 countries are from the EU, Russia, Iraq, USA, UAE, Iran, and Romania; see Figure 3.3.

Figure 3.3: Top-12 Countries' Contributions to 53% of Exports.

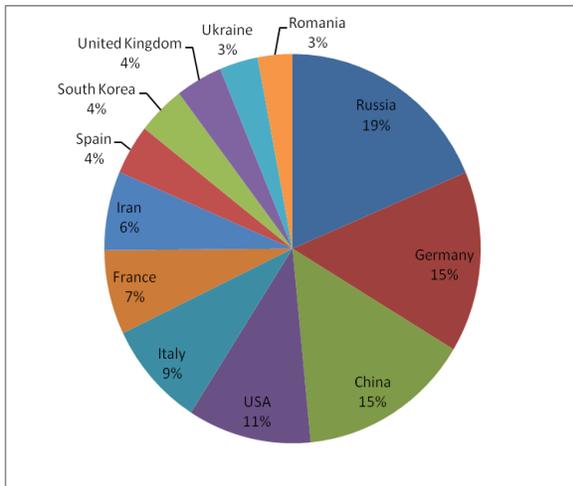


Source: Data from TURKSTAT.

In 2010, 56% of exports were made to European countries and 46% to EU countries. Europe is unquestionably Turkey's largest export partner. Asia is the second largest partner at 28%, primarily made up of exports to near-eastern countries. Africa has been a fast-growing export partner at 8.16%. Due to the geographical distance, exports to the Americas (particularly to Central and South America) are low.

Turkey's largest import partner is Russia. Imports from Russia are worth \$21,600 million and correspond to 12% of the total imports. Turkey's top-12 import partners sell \$116,241 million worth of goods, or 63% of imports; see Figure 3.4. Two countries that appear only as significant import partners are China and South Korea. These are world-class manufacturing economies and sell various goods to Turkey. On the other hand, Russia sells a significant amount of natural gas to Turkey. The Energy Delta Institute reports 17,260 million cubic meters of Turkish natural gas imports in 2009. This costs \$5,178 million at the price of \$300 per thousand cubic meters. Turkey's dependence on and payment for imported gas are significant.

Figure 3.4: Top-12 Countries' Contributions to 63% of Imports.



Source: Data from TURKSTAT.

Most trade is accomplished via maritime, road, and air transportation; the role of railways is very limited. TURKSTAT reports that 51.57%, 40.35%, and 6.76% of exports take place via respectively maritime, road, and air transportation. The same order is true for imports as well: 60.69% by maritime, 22.88% by road, and 9.38% by air transportation.

Section 4. Infrastructure

A. Air Transportation

Turkey has approximately 24 international airports equipped with customs facilities and 19 domestic airports; see Figure 4.1. Some of these 24 international airports receive only international charter flights. The major airports are Atatürk (IST) in western İstanbul, Sabiha Gökçen (SAW) in eastern İstanbul, Esenboğa (ESB) in Ankara, Adnan Menderes (ADB) in İzmir, Dalaman (DLM) in southern Muğla, Bodrum (BJV) in northern Muğla, and Adana (ADA), Antalya (AYT), Diyarbakır (DIY), Tekirdağ (TEQ), and Trabzon (TZX) city airports.

Figure 4.1: International (red) and Domestic (blue) Airports as of 2009.



Source: UTIKAD.

With over 32 million passengers annually, Atatürk (IST) airport would be ranked between Detroit and Seattle airports as the 17th if it were in the USA^{xiii}. Major passenger airports are also leading cargo (including luggage and mail) airports, with the exception that TEQ replaces DIY in the tenth place; see Tables 4.1-2.

Table 4.1: Number of Passengers in 10 Popular Airports (in multiples of 100,000, domestic in the first three rows, and international/total in the fourth row).

| | IST | AYT | SAW | ESB | ADB | DLM | BJV | ADA | TZX | DIY |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2008 | 286 | 188 | 43 | 57 | 55 | 32 | 27 | 23 | 15 | 10 |
| 2009 | 298 | 183 | 65 | 61 | 62 | 33 | 28 | 25 | 16 | 11 |
| 2010 | 321 | 220 | 112 | 78 | 75 | 38 | 31 | 28 | 20 | 14 |
| Intrntl/Total | 62% | 84% | 33% | 19% | 29% | 86% | 66% | 18% | 5% | 1% |

Source: DHMI, www.dhmi.gov.tr/istatistik.aspx.

With a few local and temporal exceptions, both passenger and cargo traffic have increased in parallel to the economic growth experienced during 2008 to 2010. This growth necessitates either building new airports or expanding and modernizing existing ones. The cost of these projects is estimated to be approximately 4 billion TL (Deloitte 2009). Airport operations (ground services at airports and air traffic control) are managed by the General Directorate of State Airports Authority (DHMI).

Table 4.2: Tons of Cargo in 10 Popular Airports (in multiples of 100,000, domestic in the first three rows, and international/total cargo in the fourth row).

| | IST | AYT | SAW | ADB | ESB | DLM | BJV | ADA | TZX | TEQ |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2008 | 783 | 380 | 107 | 75 | 73 | 45 | 37 | 33 | 17 | 14 |
| 2009 | 826 | 384 | 126 | 80 | 73 | 46 | 36 | 32 | 17 | 13 |
| 2010 | 944 | 447 | 172 | 95 | 89 | 52 | 38 | 37 | 20 | 16 |
| Intrntl/Total | 83% | 83% | 71% | 41% | 42% | 88% | 73% | 29% | 10% | 98% |

Source: DHMI.

Following the deregulation of the airline sector, a few new airlines have risen in addition to the largest and oldest Turkish Airlines (THY, www.turkishairlines.com). These include approximately 17 airlines that collectively own approximately 328 aircrafts. In addition there are 61 airtaxi companies that own 268 aircrafts. These yield a collective 52,442 seat capacity^{xiv}. Besides THY, Pegasus (www.flypgs.com), Atlas Jet (www.atlasjet.com), and Onur Air (www.onurair.com.tr) are major airlines serving domestic and international destinations. In 2011 THY flies directly to over 100 destinations in Europe, as well as to Chicago, New York, Sao Paulo, Washington D.C., Los Angeles, and Toronto in the Americas. It also flies to approximately 20 destinations in Africa, the Far East, and the Middle East respectively. THY has 57% and 54% shares of the international and domestic markets respectively^{xv}, making it the fourth-largest airline in number of passengers among the members of the Association of European Airlines (www.aea.be). THY has been chosen to be the best airline in Europe^{xvi}. Air France-KLM, Emirates, British Airways, Lufthansa, and Singapore Airlines have frequent and regular service to major Turkish airports.

Judging from the high and increasing volume of traffic, the deregulation and privatization of airlines and airport operations, and Turkey's commitment to expanding and modernizing its airports, air transportation is expected to play a key role in the further growth of the Turkish economy. While this growth is taking place it may be challenging for the Civil Aviation and State Airports Authority to maintain and improve on service quality, processing speed, and safety. These can increase air shipment costs and times, and make other modes of transportation viable.

A. Maritime Transportation

Turkey is surrounded by the Mediterranean, Aegean, and Black Seas beginning from the south and moving clockwise to the north. The country also includes the internal Marmara Sea that connects to the Aegean in the south via Çanakkale Strait, and up to the Black Sea via İstanbul Strait. Major ports are located around Marmara Sea, and the Gulfs of İzmir and İskenderun; see Figure 4.2:

Figure 4.2: Turkish Ports.



Source file: A public domain map^{xvii} modified by the authors.

Table 4.3 shows the typically increasing freight traffic (loaded and unloaded) at the busiest 10 Turkish ports from 2006 to 2007. The traffic increased by 10.44% overall while the number of vessels increased by only 3.57%. Apparently larger vessels came to Turkish ports in 2007 than in 2006.

Table 4.3: Cargo Statistics for 10 Popular Ports.

| Ports | Number of Vessels in 2007 | Change over 2006-2007 | Freight (in million tons in 2007) | Change over 2006-2007 |
|----------------------|---------------------------|-----------------------|-----------------------------------|-----------------------|
| İzmit | 13,001 | -0.15% | 44.353 | -8.65% |
| Aliğa | 4,253 | 5.09% | 37.401 | 7.29% |
| Ambarlı | 6,144 | 0.95% | 27.154 | 26.97% |
| İzmir | 3,013 | -2.68% | 19.466 | 60.27% |
| İskenderun | 2,307 | 12.04% | 18.212 | 26.25% |
| Botaş | 661 | 16.17% | 17.549 | 14.04% |
| Mersin | 3,851 | 2.85% | 16.431 | 17.09% |
| Karadeniz Ereğli | 1,419 | 2.23% | 11.452 | -7.33% |
| Gemlik | 2,775 | 6.28% | 8.909 | 8.69% |
| İstanbul | 5,992 | 1.01% | 6.358 | 0.57% |
| Total (incl. others) | 64,970 | 3.57% | 257.037 | 10.44% |

Data Source: TURKSTAT (2011), p.1.

Different ports are equipped with different piers and material handling facilities. Port facilities can be checked at the website of Undersecretary of Maritime Affairs^{xviii}. A quick glance at this site reveals that İzmit port has 35 state- and private-owned piers that can be used by ships over 500 GRT (gross registered tonnage). The same figure is 11 at Aliğa, 11 at Ambarlı, 8 at İskenderun, 4 at Botaş, and 6 at Mersin. Turkish port operations are being privatized. For example, Mersin port is operated by PSA International, and Dubai World is developing a port at Yarımca on the Marmara Sea coast.

The freight volume at İzmit, Aliğa, and Botaş ports may be surprising. These ports are primarily used for crude oil, oil products, and liquefied gas transportation. For example, Botaş port is essentially a liquefied gas pumping station; 7.27 and 6.95 million tons of oil products were loaded and 11.03 and 10.33 million tons crude oil are unloaded at İzmit and Aliğa ports respectively during 2007. Similar numbers for industrial products are 5.11 and 4.54 million tons loaded, and 13.39 and 8.44 million tons unloaded at these ports respectively. Oil and industrial product receipts or shipments are major operations at these ports, which support nearby refineries and chemical industries.

Ambarlı and İzmir ports both have heavy container traffic. In 2007, Ambarlı and İzmir loaded 7.31 and 5.84 and unloaded 10.15 and 2.70 million tons of full-containers respectively. Mersin is a flexible port that handles a combination of cargos at İzmit-Aliğa and Ambarlı-İzmir type ports. It loads 4.25 and 1.40 million tons of full-containers and industrial products, and unloads 4.40 and 3.79 million tons of full-containers and oil products annually.

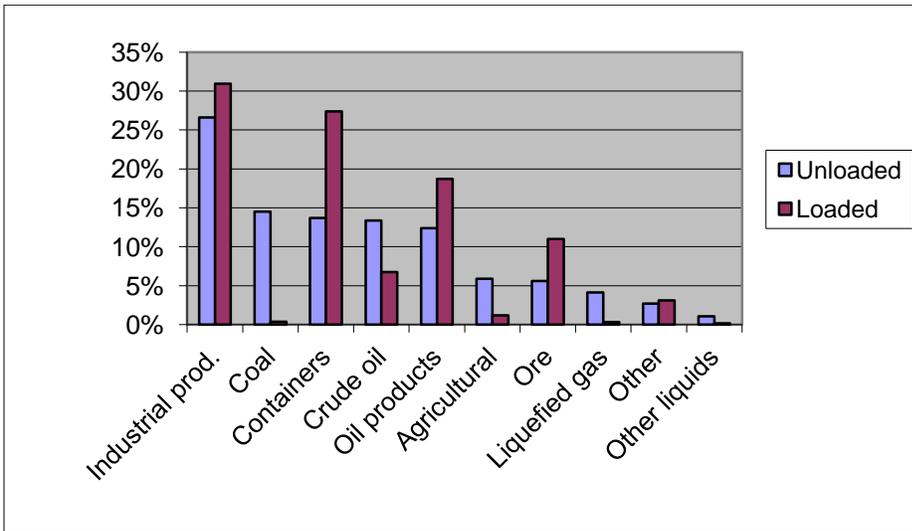
İskenderun and Karadeniz Ereğli ports are another pair with shipment similarity. İskenderun and Karadeniz Ereğli respectively loaded 3.54 and 1.58 million tons of industrial products. They unload a great deal of coal, ore, and industrial products; 4.62, 2.01, 6.06 million tons for İskenderun and 2.52, 4.32, 2.40 for Karadeniz Ereğli respectively. Significant amounts of coal and ore go to support İsdemir (www.isdemir.com.tr) and Erdemir (www.erdemir.com), both iron and steel manufacturers. The remaining two ports in the top-ten list are Gemlik and İstanbul, which primarily deal with full-containers and industrial products.

Ambarlı on the Marmara, İzmir on the Aegean, and Mersin on the Mediterranean Sea seem to be major import and export destinations. Black Sea ports appear to be more fragmented; Zonguldak, Samsun, Trabzon, and Rize ports are relatively small. Neither Trabzon nor Rize are connected to the Turkish railway network. Samsun is well-connected via highways and railways as well as having a more central location; it therefore offers a good gateway into Turkey from the Black Sea. Ambarlı and İzmir ports are fairly busy gateways on the Mediterranean Sea side, while Mersin's privatized port, railway, highway, and air (through Adana airport) connections as well as free economic zone (accompanied storage and handling facilities) operated by Mesbaş (www.mesbas.com.tr) offers an attractive port.

Ro-Ro ship services are available in Black Sea between Rize and Poti, Georgia; between Trabzon and Sochi, Russia; Samsun and Novorossiysk, Russia; and Zonguldak and Evpatoria, Ukraine (www.karadenizroro.com). Other regular services in the Black Sea connect İstanbul to Burgas, Varna (Bulgaria), Constanța (Romania), Illichivsk, and Odessa (Ukraine). Mersin, İzmir, and İstanbul are connected to Trieste (Italy) via the Mediterranean Sea.

Approximately, 1.5 million passengers departed from or arrived at Turkish ports. These ports also loaded one third and unloaded two third of the 257 million tons handled during 2007. The breakdown of these loads is in Figure 4.3. Four of the top five items (industrial products, coal, and crude oil and oil products) are either energy resources or industrial products. The other item on the top five list is containers that may include industrial as well as agricultural products.

Figure 4.3: Percentage of Cargo Handled at Ports in 2007.



Data: TURKSTAT (2011), pp.46-57.

Turkish straits are critically important waterways not only for Turkey, but also for Europe. Through these and Black Sea European ships can reach to the Mediterranean Sea. In 2010 51,148 and 47,165 ships passed through İstanbul and Çanakkale Straits respectively. According to Table 4.4, the traffic at the straits seems to be stable over multiple years and seasons. More ships pass through İstanbul Strait, but larger ships pass through Çanakkale Strait. There is approximately the same number of tankers also passing through the straits. The hourly traffic (assuming 365 by 24 hours per year) is approximately six ships at İstanbul. The 30 kilometer İstanbul strait is not straight; its width drops to approximately 700 meters and it has strong undercurrents and blind turns. 12 million people live around the strait that is busy with ferry traffic and local fishing boats. Ships are therefore advised to utilize local captains as guides, but nearly half opt out. Combining these hazards with the heavy traffic of large ships, it is not surprising that transit and waiting times before entering the strait are respectively about 1.7 and 7 hours (higher for cargo ships), and approximately 200 accidents happened during the past decade (Tütün 2008). Turkey is actively pursuing faster and safer land transportation, as well as water channel alternatives to İstanbul Strait.

Table 4.4: Sea traffic at Turkish straits.

| İstanbul Strait | | | | |
|----------------------------|---------|---------|---------|---------|
| Annual Data over 2006-2009 | 2006 | 2007 | 2008 | 2009 |
| Number of Ships | 54,880 | 56,606 | 54,396 | 51,422 |
| Quarterly Data in 2010 | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec |
| Number of Ships | 11,504 | 13,883 | 13,807 | 12,214 |
| Gross Tonnage/1000 | 120,495 | 127,481 | 133,275 | 124,076 |
| Number of Tankers | 2,278 | 2,368 | 2,310 | 2,351 |
| Guided by Local Captain | 52.23% | 49.74% | 49.17% | 52.12% |
| Çanakkale Strait | | | | |
| Annual Data over 2006-2009 | 2006 | 2007 | 2008 | 2009 |

| | | | | |
|-------------------------|---------|---------|---------|---------|
| Number of Ships | 48,915 | 49,913 | 48,978 | 49,453 |
| Quarterly Data in 2010 | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec |
| Number of Ships | 10,678 | 12,625 | 12,725 | 11,137 |
| Gross Tonnage/1000 | 149,873 | 172,136 | 181,484 | 168,460 |
| Number of Tankers | 2,284 | 2,391 | 2,370 | 2,244 |
| Guided by Local Captain | 39.31% | 39.21% | 38.95% | 41.81% |

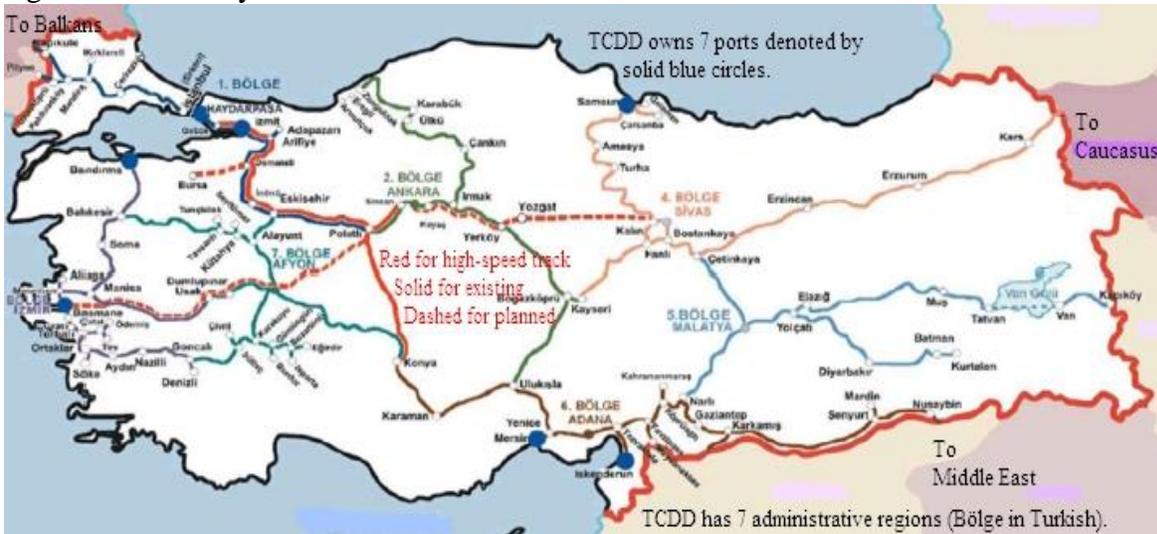
Data Source: Undersecretary of Maritime Affairs^{XIX}.

Due to various mountains, Turkish rivers flow rapidly over abruptly curving and dropping paths that make them more appropriate for rafting than cargo transportation. Except for a ferry connecting the eastern and western coasts of Lake Van, lakes are also infrequently used for transportation.

B. Railways

The TCDD (Turkish Republic State Railways) builds and maintains railway infrastructure, provides transport services using its own trains, manufactures cars and locomotives, and owns seven ports in Bandırma, Derince, Haydarpaşa, İskenderun, Mersin, İzmir, and Samsun. The first three of these are located around the Marmara Sea where railways end. The remaining four are located on the coasts of the Mediterranean, Aegean, and Black Seas moving clockwise on the map of Figure 4.4 from İskenderun to Mersin, İzmir, and then to Samsun.

Figure 4.4: Railway Network.



Source: UTIKAD. Map modified by authors.

As of 2010 Turkey has 11,405 kilometers of railway. In comparison, Germany has 70,557 km; some other countries and their track lengths are as follows: Poland 38,132; UK 31,119; Sweden 15,487; and Hungary 9,223. Freight transported by rail can be measured in millions of tons multiplied by kilometers. For Turkey this number was 11,300 in 2009, and for some other countries as follows; Germany 107,317; Poland 48,705; UK 19,171; Sweden 19,405; and Hungary 8,809^{XX}. Turkey has both a low-density rail network (25%) and low-traffic density

(56%) with respect to the EU (normalized at 100%), while productivity numbers are on par with the EU (Monsalve 2011).

Regarding the quality of Turkish railway tracks, the average age of rails is approximately 19 years and 2,273 km of Turkish tracks are electrified. 25% and 2.5% of tracks respectively have slopes over 1% and 2% (TCDD 2009). This is due to mountains beginning roughly from the Mediterranean city of Adana, rising in the northeast, and covering a significant portion of eastern Turkey

The freight carried by rail is mostly machines, vehicles, ores, solid fuels, and construction materials. According to Table 4.5, the amount freight dropped slightly from 2008 to 2009 as a consequence of the economic slowdown.

Table 4.5: Freight Carried by Rail (numbers in ton columns are in 1,000s, and numbers in ton-Km columns are in 1,000,000s).

| | 2007 | | 2008 | | 2009 | |
|-----------------------------------|-------|--------|-------|--------|-------|--------|
| | Ton | Ton-Km | Ton | Ton-Km | Ton | Ton-Km |
| Machines and Vehicles | 4958 | 2019 | 6930 | 2680 | 6499 | 2663 |
| Ores | 5084 | 2820 | 4263 | 2326 | 4555 | 2391 |
| Solid fuels (coal, coke, lignite) | 3446 | 1392 | 3188 | 1279 | 2753 | 1075 |
| International | 3100 | 1316 | 3215 | 1367 | 2359 | 855 |
| Construction Materials | 1926 | 783 | 2177 | 889 | 1456 | 743 |
| Others | 947 | 536 | 1300 | 795 | 1274 | 802 |
| Petroleum Products | 274 | 141 | 537 | 341 | 984 | 606 |
| Metallurgy Products | 502 | 297 | 598 | 381 | 924 | 612 |
| Fertilizers | 276 | 212 | 311 | 235 | 174 | 136 |
| Agriculture/Forest Products | 202 | 108 | 232 | 139 | 150 | 120 |
| Food and Fodder | 134 | 131 | 119 | 120 | 142 | 159 |
| Total | 20849 | 9755 | 22870 | 10552 | 21270 | 10162 |

Source: TCDD (2009), pp.75-78.

According to Table 4.6, the TCDD invested 1.3 billion TL in 2009; most of this was spent to improve tracks. This is a result of 31% and 24% budgetary increases during 2007 to 2008 and from 2008 to 2009 respectively. This rising trend is necessary for expansion and modernization.

Table 4.6: TCDD Investments in TL.

| | 2007 | 2008 | 2009 |
|--------------------------------|-------------|---------------|---------------|
| Vehicle Repair and Manufacture | 5,568,457 | 5,447,828 | 3,414,939 |
| Railway Transportation | 799,836,806 | 1,052,463,954 | 1,309,052,128 |
| Maritime Transportation | 1,784,488 | 644,195 | 705,993 |
| Total (including training) | 807,189,751 | 1,058,555,977 | 1,313,173,060 |

Source: TCDD (2009), p.101.

One of the major projects is a high-speed train (250 km/hr); 396 km of new track was laid in 2009, mostly between Eskişehir and Ankara. This line has commercial service. The Ankara to

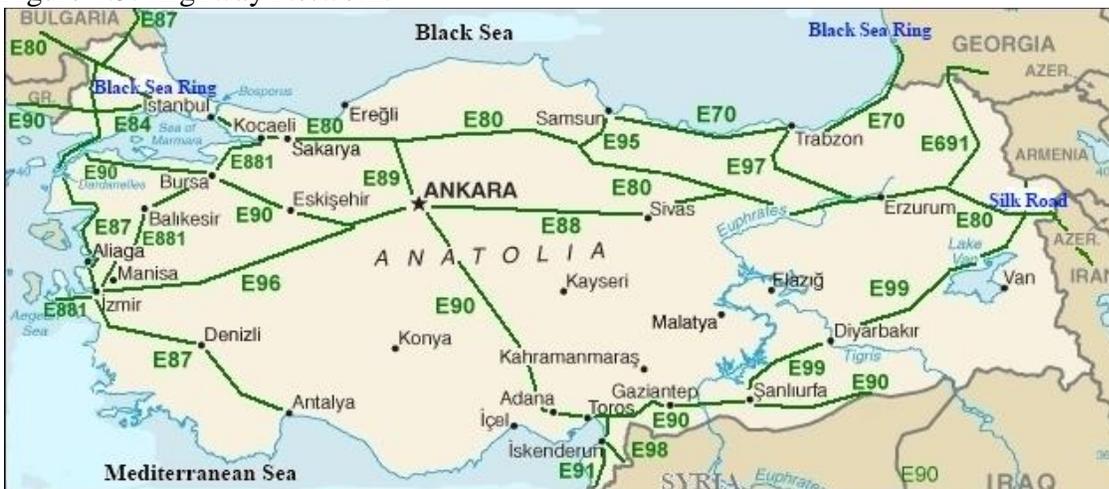
Konya line is also completed but it is being tested as of summer 2011. The TCDD plans to expand these lines to Sivas and İstanbul^{xxi}; see Figure 4.4.

Another major project is the Marmaray -- a railway tunnel under the İstanbul Strait^{xxii}. The Marmaray will connect the currently disconnected Turkish railway networks of Thrace and Anatolia. The project was to be completed by spring 2011 and is several years behind schedule, partially due to discovery of archaeological sites during excavations.

D. Roadways

Roadways are very important in Turkey as they handled 97.8% of passenger and 94.9% of freight transportation respectively within the country during 2007 and 2008^{xxiii}. The Turkish road network is built and maintained by the Turkish Republic Road (TCK) General Directorate with a budget of 9.5 TL billion. The network includes 12,277 km asphalt or concrete roads, 48,929 km surface treated or covered roads, and 3,659 km other types of roads. 2,080 km of the network consists of toll-roads that are in perfect condition. Figure 4.5 shows the portion of the Turkish network that belongs to the European E-Road. Updated and detailed maps are maintained by the TCK^{xxiv}.

Figure 4.5: Highway Network.



Source: UTIKAD. Map modified by authors.

A major undertaking of the TCK is building divided highways. Except for a portion of E80 in the Black Sea region, the entire European E-road network in Turkey consists of divided highways. As of December 2010, the country has 19,702 km divided highway and is building 3,429 km more. An additional 3,253 km of divided highway will soon be contracted out for construction^{xxv}.

One of the initiatives aimed at enhancing the Eurasian road network is the Black Sea Ring Highway that encircles Black Sea using E-70 and E-80 in Turkey. Leaving İstanbul in the clockwise direction, this ring includes Bucharest, Chisinau, Odesa, Rostov-on-Don, Vladikavkaz, Tbilisi, Trabzon, and Samsun (www.blacksearing.org). From Gutzkow et al. (2008), long waiting times at borders and the harmonization of custom procedures are the

primary challenges that must be overcome along the ring. The BSEC (Black Sea Economic Cooperation) has responded with some memoranda of understandings and agreements (www.bsec-organization.org) in order to facilitate border crossing.

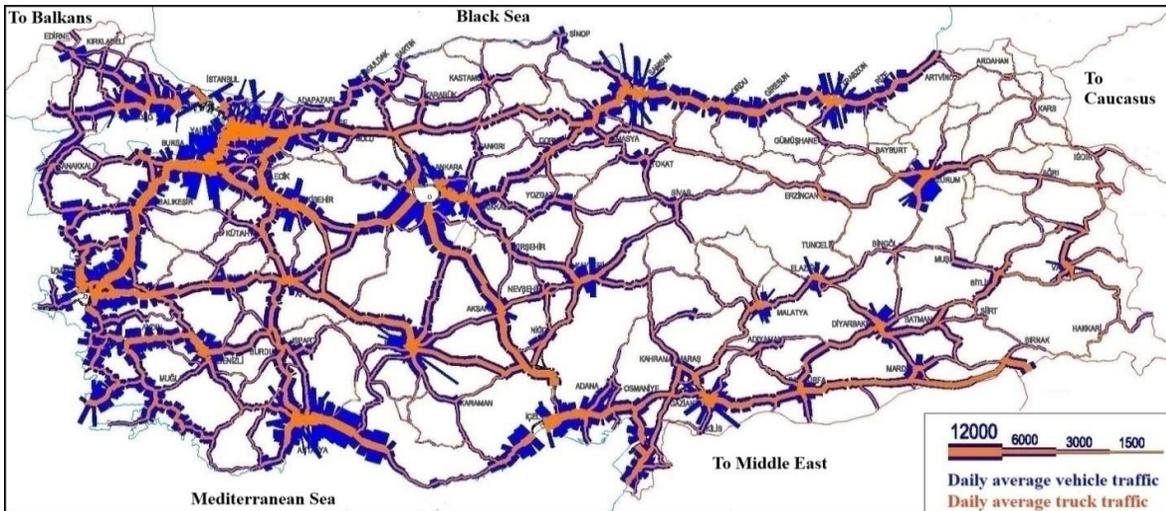
The Silk Road revitalization is another initiative called the NELTI (New Euroasian Land Transport Initiative) by the IRU (International Road Transport Union www.iru.org). The Silk Road has been very important for centuries for freight transportation in Eurasia (Haksöz et al. 2011). One of the routes is approximately 4000 km long and it begins in Kashgar, China and passes through Kyrgyzstan, Uzbekistan, Turkmenistan, and Iran to connect with E-80 in Turkey. Freight on this route includes plastics, spare parts, consumer goods, dried fruit, leather, and raw materials according to the IRU-NELTI (www.iru-nelti.org).

As of April 2011 there are approximately 15.5 million registered vehicles: 50.2% automobiles, 16.1% pick-up trucks, 15.6% motorbikes, 9.2% tractors, 4.8% trucks, and 3.9% buses. The average age of trucks is slightly over 15 years. Until 2003, at most 15% of the road freight (measured in km-ton) was carried by trailers in Turkey. Following changes in transportation regulation semitrailers have become more popular and carried 39% of all freight while trucks carried the remaining 61%. According to Ünal et al. (2011), this regulation has encouraged the establishment of professional 3PL logistics companies that favor trailers. The same study has also found by sampling approximately 15,000 vehicles on highways that on average trailers carry 13.6 tons while trucks carry 8.7 tons. Switching from trucks to trailers should then increase efficiency via economies of scale and reduce logistics costs.

Figure 4.6 shows a traffic volume map. The heavy volume around İstanbul, Ankara, İzmir, the northern cities of Samsun and Trabzon, and the southern cities of Antalya, Mersin, and İzmir are particularly striking, while the traffic around eastern cities is limited. Reasons for this lopsided picture are the challenging topography and low-level industrial activity in the east. This imbalance can be mitigated via additional trade with countries in the Caucasus and Central Asia. From this perspective the Black Sea Ring Highway and Silk Road initiatives are particularly important.

Turkish 3PL firms are also hopeful regarding trade in these directions (Başev 2011). Another initiative on the agenda is building an alternative bridge over Çanakkale Strait in order to reduce the vehicle traffic on İstanbul bridges. Other initiatives to reduce the traffic in the major cities are also necessary.

Figure 4.6: Highway Traffic Volume in 2009.



Source: Map on p.74 of Ünal et al. (2011) is translated by authors.

E. Communication, Internet, and E-Government

Following Germany, the UK, and Italy, Turkey is the fourth-largest European mobile phone market with 62.78 million subscriptions. Turkey has 0.88 subscriptions per inhabitant, while these three countries all have more than one subscription per inhabitant; the Turkish market is therefore less saturated^{xxvi}.

42% of Turkish households have Internet access. Following the Turkish e-government initiative, 88.75% of 20 basic public service tasks can be fully executed online. For example, the Ministry of Science, Industry, and Technology accepts forms with e-signatures via its service portal; the Customs General Directorate^{xxvii} links to the customs database GÜVAS. The average number of days to clear customs was 15 in 2009 and is dropping. The Ministry of Justice uses the UYAP database (www.uyap.gov.tr) that automates judiciary services via e-signatures and cooperating with other databases (including GÜVAS, MERNIS for birth and address records, POLNET for driving license and criminal records, and TAKBIS for land title records). However, only 9% of the Turkish population currently uses e-government. For comparison, the last three statistics represent 70% of households, 84.28% of public services, and 32% of the population in the EU^{xxviii}.

Section 5. Energy

Turkey’s energy demands have been increasing rapidly during recent years due to urbanization, industrial activities, and population and GDP growth. The total energy consumption and energy consumption per capita during 2000 to 2009 presented in Table 5.1 vividly display this increasing trend^{xxix}.

Table 5.1: Energy Consumption in Turkey (total consumption is in million tons of oil equivalent, and consumption per capita is in kilograms of oil equivalent).

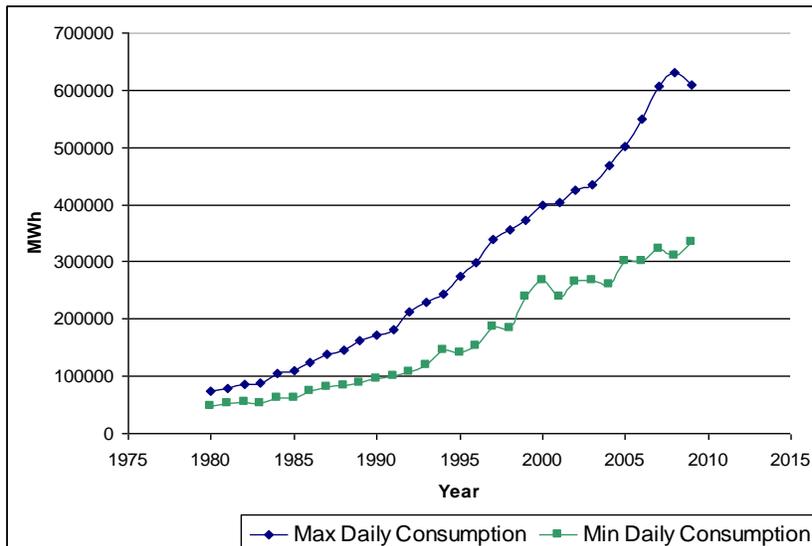
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|-------------------|------|------|------|------|------|------|------|------|------|------|
| Total Consumption | 76 | 69 | 75 | 81 | 86 | 91 | 96 | 101 | 102 | 97 |

| | | | | | | | | | | |
|------------------------|------|------|------|------|------|------|------|------|------|------|
| Per Capita Consumption | 1151 | 1040 | 1117 | 1192 | 1248 | 1311 | 1358 | 1415 | 1420 | 1332 |
|------------------------|------|------|------|------|------|------|------|------|------|------|

Source: ISPAT, Turkish Energy Industry Report, August 2010.

According to a Turkish Industrialists' and Businessmen's Association, TÜSİAD (2009), approximately \$10 billion annual investment is necessary to keep up with the growing industrial and consumer demand. Parallel to energy consumption, electricity demand has been also increasing. Figure 5.1 shows the maximum and minimum daily electricity consumption during 1980 to 2009. The CAGR (Compound Annual Growth Rate) of the electricity demand between 2004 to 2007 is reported as 7.2% according to TEİAŞ (Turkish Electricity Transmission Company www.teias.gov.tr). Beginning in 2009, the energy supply for electricity is reported to be insufficient to satisfy the growing demand. The estimated investment required during 2010 to 2030 is between \$193-225 billion; this is composed of \$180-210 billion for generation, \$6-7 billion for transmission, and \$7-8 billion for distribution (Energy Market Regulatory Authority www.epdk.com.tr).

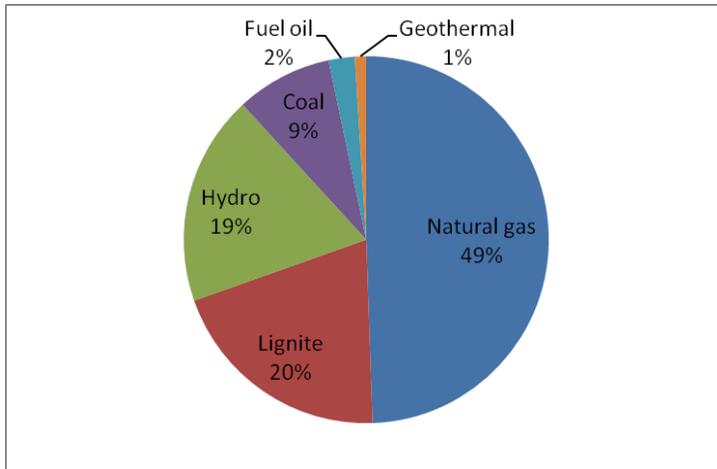
Figure 5.1: Electricity Consumption during 1980-2009.



Source: TEİAŞ.

Turkish electric power generators derive almost half of its energy needs from natural gas. The other energy sources are listed in Figure 5.2.

Figure 5.2: Energy Source Composition for Power Generation in 2009.



Source: Data from TEİAŞ.

Oil and Natural Gas: Turkey is primarily an importer of oil and natural gas. As of December 2009, Turkey’s oil and natural gas reserves are 299 million barrels and 6.2 billion cubic meters respectively (TPAO 2010). Natural gas has been more in demand recently for industrial use and power generation. In 2009 53% of all natural gas was used for power generation, 25% for industrial use, and 22% for residential use (Turkish Energy Industry Report 2010). This dependence on natural gas is one of the critical supply risks for Turkey’s electricity generation.

Thermal electric generating plants are fueled by natural gas and coal. This necessitates that Turkey purchase natural gas via pipelines or via LNG-loaded tankers. BOTAŞ is the responsible government body for natural gas procurement and transmission. BOTAŞ pipelines covered 66 provinces (out of 81) by the end of 2009. It imports, stores, and sells natural gas in Turkey. Natural gas is procured mainly via long term supply contracts. In 2008 spot purchase represented only 1% of the total demand (Turkish Energy Industry Report 2010).

Table 5.2 displays the current procurement contracts used as well as the volume (during the plateau period) of procurement, date of signature, and durations. Since contracts span durations of 15 to 30 years, price volatility in the market as well as end consumer demand must be effectively managed.

Table 5.2: Natural Gas Procurement Contracts (volume is in billion m3 per year).

| Current Contracts | Volume | Signature date | Period in year |
|-----------------------|--------|----------------|----------------|
| Rus. Fed. (Westward) | 6.0 | 14-02-1986 | 25 |
| Algeria (LNG) | 4.0 | 14-04-1988 | 20 |
| Nigeria (LNG) | 1.2 | 9-11-1995 | 22 |
| Iran | 10.0 | 8-08-1996 | 25 |
| Rus. Fed. (Black Sea) | 16.0 | 15-12-1997 | 25 |
| Rus. Fed. (Westward) | 8.0 | 18-02-1998 | 23 |
| Turkmenistan | 16.0 | 21-05-1999 | 30 |
| Azerbaijan | 6.6 | 12-04-2001 | 15 |

Source: BOTAŞ.

Turkey’s geostrategic location on the globe makes it a transit energy hub and corridor, particularly for oil and natural gas. Oil and gas from the Middle East, Caspian Sea, and Central Asia could be effectively transmitted to markets in European states. The Baku-Tbilisi-Ceyhan (BTC) oil pipeline has been in operation since 2005 and used for crude oil transmission from the Caspian to the Mediterranean Seas, and from there via tankers to Europe. It length is 1768 km and pipeline capacity is one million barrels of oil per day^{xxx}.

Other pipeline projects are being discussed for natural gas transmission. One of these projects is Nabucco. It created a great deal of debate in international circles since geopolitics plays an important role in pipeline choices (MIT Energy Initiative Report 2010). The Nabucco project aims to satisfy Europe’s increasing natural gas demand from a wide range of sources located in the Caucasus, Caspian Sea, and Middle East such as Azerbaijan, Turkmenistan, Iran, Iraq, Syria, and Egypt. Europe’s supply dependence on Russian gas will be reduced via this project. In the near future proven reserves from Iraq will also be added to the established capacity. This project is managed by a consortium of six firms, five of which are partner countries’ natural gas companies, and the final one is the RWE Midstream GmbH. Due to political instability in the Middle East, the importance of this project increases as Caspian Sea and Central Asian resources could potentially reach European customers via a secure pipeline. Turkey’s geostrategic position to become the west-east energy transit artery is also enhanced by this project. Moreover, the former premier of Armenia (Sarkissian 2011) stated that the Caspian Sea natural gas reserves could easily move to east towards energy-hungry China rather than Europe if pipeline projects such as the Nabucco cannot be put into action soon.

Lignite and Hard Coal: Approximately 30% of Turkey’s energy supply is derived from lignite and hard coal (2009 value was 28.6%, see Figure 5.2). Table 5.3 provides the domestic coal production and consumption as well as its evolution during 2005 to 2009. What is striking is that only half of the total consumption can be satisfied by domestic production. The remaining required coal is imported. Lignite is produced mostly by the state-owned Turkish Coal Works (TKI) in different areas of Turkey. The major mining region for lignite is Afşin-Elbistan located in southern Turkey (Turkish Energy Industry Report 2010). On the other hand, hard coal is primarily mined in the city of Zonguldak in the Black Sea region by the Turkish Hard Coal Enterprises (TTK). Although the coal market is dominated by the state-owned monopoly TTK, private enterprises also operate in the coal supply chain during the production, processing, and distribution stages (Turkish Energy Industry Report 2010).

Table 5.3: Coal Production and Consumption in ktoe (kilo tons of oil equivalent).

| | 2005 | 2006 | 2007 | 2008 | 2009 |
|------------------|-------|-------|-------|-------|-------|
| Coal Production | 10806 | 13085 | 14794 | 15044 | 15069 |
| Coal Consumption | 22794 | 26448 | 29385 | 29190 | 28204 |

Source: ISPAT, Turkish Energy Industry Report, August 2010.

Hydroelectric: As of 2009 Turkey has 213 HEPPs (hydroelectric power plants) with an installed capacity of 14.3 GW (DSI 2009). Turkey’s technical hydro capacity is 44.2 GW. Today only approximately 36% of the total capacity is therefore in use. In 2009 approximately 77% of the new licenses granted to the private sector were for new HEPP construction. Licenses are granted for 49 years. Although most of the new HEPPs are owned and operated by

the state, the private sector is also involved via build-operate-transfer or transfer of operating rights schemes (Turkish Environmental Technologies & Renewable Energy Industry Report 2010).

Renewables: In the past few years some progress has been made to diversify Turkey’s electricity generation portfolio via the introduction of renewables. Turkey has a variety of renewable energy sources: wind, solar, geothermal, hydro, biomass, and biogas. Below is a brief overview of the current energy production potential of the most attractive sources.

The total solar energy potential of Turkey is 35,000 ktoe per year. Solar energy production is expected to reach 602 ktoe in 2010 and 1,119 ktoe in 2020^{xxxi}. On the other hand, Turkey’s wind energy potential is 88,000 MW, yet its economic wind energy potential is only 10,000 MW. The Marmara Sea, Mediterranean Coast, and Aegean Sea Coast are the best regions for wind-based energy production (Özyurt 2010). Table 5.4 lists locations and capacities for wind turbines; locations are given in terms of cities but a single city often hosts several clusters of turbines. For example, Balıkesir has operational turbines in Bandırma and Şamlı. Wind and Solar energy potential is studied by EIE (Electricworks Study General Directorate) that maintains color-coded maps of Turkey for wind speed and solar radiation accessible from www.eie.gov.tr.

Table 5.4 Wind Turbine Locations and Capacities in MW as of April 2009.

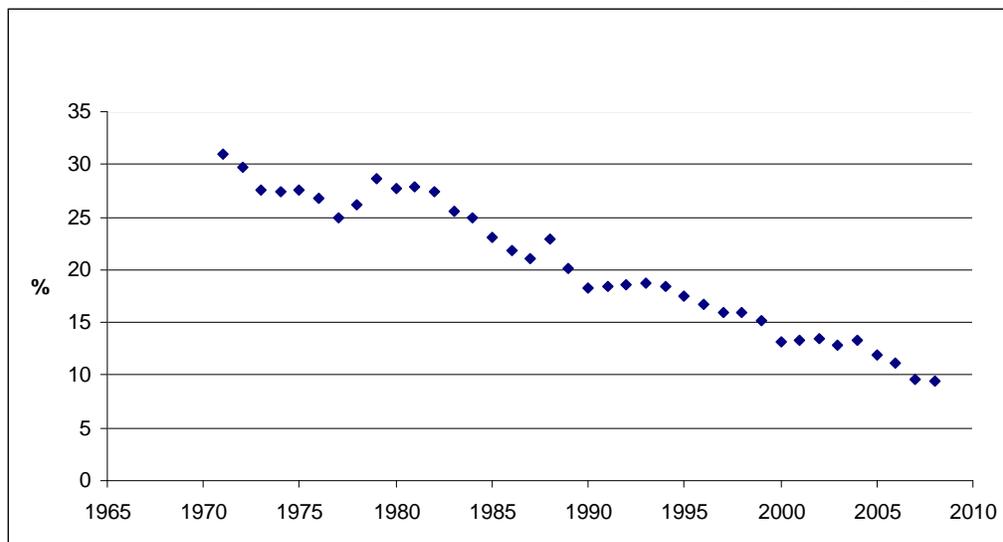
| Location | Capacity |
|---|-----------------|
| Balıkesir | 120.00 |
| Çanakkale | 55.50 |
| Hatay | 30.00 |
| İstanbul | 86.05 |
| İzmir | 90.04 |
| Manisa | 41.40 |
| Muğla | 10 |
| Total Operational Capacity | 433.35 |
| Aydın | 31.50 |
| Hatay | 57.60 |
| İzmir | 37.50 |
| Manisa | 140.80 |
| Osmaniye | 135.00 |
| Total Capacity under Construction | 402.40 |
| Balıkesir | 277.40 |
| Çanakkale | 20.80 |
| Edirne | 15.00 |
| Hatay | 30.00 |
| İzmir | 180.00 |
| Manisa | 115.60 |
| Tekirdağ | 28.80 |
| Total Capacity of Projects with a Turbine Contract | 667.60 |

Source: Data from EIE.

Turkey’s geothermal field potential is ranked seventh in the world. Geothermal fields are located in southwestern part of Turkey. For example, the Germencik-Aydın field in the Aydın Province is the most attractive field; it is estimated that its power generation potential can exceed 100 MW (Guner Law Office Report 2008). The total biomass production was 7.3 mtoe in 2005 and is expected to be 52.5 mtoe in 2030. Özyurt (2010) states and refers to technical analyses that biogas systems could be a viable alternative to traditional space heating systems (wood, coal, or a mixture) in rural Turkey.

Figure 5.3 displays the evolution of the percentage contribution of renewables in the total energy supply. The decrease in time was due to the high usage of natural gas in the energy generation portfolio in order to satisfy immediate energy demand.

Figure 5.3: Percentage Contribution of Renewables in Total Energy Supply.



Source: OECD.

In 2007 Turkey passed a law on “Utilization of Renewable Energy Resources for Electricity Production.” The TÜSİAD advocates for improving the investment climate further in order to support the fledgling renewable energy sector. In early 2011 a new feed-in-tariff policy was adopted in order to motivate investments in renewable energy generation. For the next ten years the tariffs will be \$0.13 per kWh for solar energy and \$0.07 per kWh for other forms. Turkey will also offer incentive payments for domestically-manufactured hardware^{xxxii}.

Electricity Market: The electricity market accounts for approximately 2.5% of the Turkish economy. With increased liberalization of the market investors have been recently lured in. In the meantime, the Energy Market Regulatory Authority has improved the legal infrastructure (Yılmaz et al. 2011). A number of Turkish firms such as Enerjisa (www.enerjisa.com.tr) (also see Haksöz and Arslan 2011), Sanko Energy (www.sanko.com.tr), Akxa Energy (www.akxaenerji.com.tr), Turcas Energy (www.turcas.com.tr), and a joint venture between Borusan and EnBW energy began operating at the generation and distribution stages of the Turkish energy supply chain. The spot market was established in 2006 for real-time balancing

of prices following the Balancing and Settlement Regulation (DUY) (TÜSİAD 2009). Producers can now easily reflect cost increases on the price, eventually reducing distribution and transmission costs. Having an efficient spot market is therefore beneficial for price discovery, market liquidity, and reference prices.

Turkey’s electricity is connected to neighboring countries via a grid where buying and selling are possible. Since the 1970s Turkey has been involved with the Union for the Coordination of Transmission of Electricity (UCTE) under the EU. Effective interconnection to the grid is therefore essential for contributing to Europe’s energy balance (TÜSİAD 2009). Synchronous operation is necessary to interconnect power lines in order to reduce transmission losses, pool loads and generations, and mitigate disturbances. Yet the current connections are not amenable for synchronous operation. For example, they are: Azerbaijan (34.5 kilovolts [kV] and 154 kV), Armenia (220 kV), Bulgaria (400 kV), Georgia (220 kV), Iran (154 kV), Iraq (400 kV), and Syria (66 kV). Turkey has also plans for 400 kV connections with Greece, Iran, Iraq, and Syria (www.geni.org), and the EIE has become a member of the European Energy Network (www.enr-network.org). Smart grid technology can also be put into practice to enable individual households to buy or sell electricity during different time periods^{xxxiii}. This technology can improve the efficiency of the retail electricity market.

Figure 5.3 compares the retail electricity prices among OECD countries in 2009. Turkey’s 2009 prices were \$ 0.135 per kWh and \$ 0.206 per kWh for industry and households respectively. The OECD averages for the reported countries were \$ 0.129 per kWh and \$ 0.197 per kWh. Turkey’s electricity prices are therefore slightly higher than the OECD average.

Figure 5.3: Industry and Household Electricity Prices in OECD Countries.



Source: TEİAŞ.

Section 6. Culture

Turkey's unique geography houses an interplay of multiple cultures that have influenced the development of Turkish business culture over time. In order to successfully operate and collaborate in such a culture one must recognize the intricacies. This can prove to be non-trivial for foreigners unless it is approached systematically (see for example the integrated cultural frameworks approach by Philips and Boyacigiller, 2003).

Turkey is classified as a medium-context culture, nearly a high context one (Çavusgil et. al., 2003). In such a culture behavioral expectations are implicit, unlike more explicit Anglo or Saxon cultures. The selection of few words and gestures while communicating with Turks becomes more important since the meaning conveyed by each word or gesture can be loaded and complex. Similar to other Mediterranean people, Turks are emotional and pride is important in both personal and business relationships (Çavusgil et.al, 2003). For example, a Turk may not accept an offer (drink, food, or opportunity) until the offer is repeated several times. This is an indication of more pride than hesitation. Another interesting example is how Turks fight with each other to pay for an outing.

In a survey, Wasti (1994) finds that job security and learning topped job expectations for Turks. The list of expectations includes belonging to a group, getting to know others, freedom, and independence. According to Wasti (1998), organizational commitment is low when the only relationship with the organization is economic versus personal as would be the case in family-run businesses. Nearly 90% of business enterprises are family firms (Boyacigiller 2011). An autocratic boss type is more prevalent in the business environment (Wasti 1998), yet the preference is for democratic types. Moreover, Turkish organizational decision making structured are more centralized relative to English or Indian counterparts (Wasti 1994). Kozan (1994) states that Turkish managers are afraid of the integrative problem solving approach, partly because this approach would be understood as a sign of weakness by subordinates. Nevertheless, participatory management styles are gaining popularity.

In a conflict, direct confrontation should be avoided. Conflicts are better managed via third-party agents or intermediaries (Kozan 1994). If these resources are not available then a softer, implicit, and empathy-building approach is more likely to succeed. Typically an easy way of building empathy by veering away from the business conflict is to talk about Turkish language and pronunciation. Some knowledge and usage of Turkish words can immediately dissipate a tense atmosphere and build camaraderie.

In a comparative study of ten countries, Aycan et al. (2000) finds Turkey to be highly paternalistic along with China, India, and Pakistan. Moreover, it is found to be moderately collectivistic and hierarchical. Paternalism as a cultural element of Turkey provides a positive impact on participation (Aycan 2001). A paternalistic leader is seen as an authority figure and trusted as an "elderly family member." However, this approach has a downside: people closer to the "family member" may receive rewards irrespective of performance (Aycan 2001). Similar studies state that charismatic leadership is the most preferred compared to paternalistic or participatory styles.

Finally, some caveats (Boyacigiller 2011) for business culture are in order. One should be aware of the differences between personality and culture since they are different level

constructs. Many subcultures do exist in Turkey and these must be carefully understood. Individuals have various cultural identities (national, industry, gender, and regional) that affect conduct. In a country of more than 70 million people, certainly some individuals behave very differently from the rough generalizations presented here.

Section 7. Future Outlook and Risks

By failing to use its resources to their full potential Turkey had been an economic underachiever. This has changed during the past several decades and the weight of Turkish economy is now felt more in global markets. The change was caused by Turkey's maturity in a multitude of aspects (government policies, institutions, political stability, urbanization, and steadily improving health and education standards), a growth in ambition and size of the workforce, as well as globalization. Despite temporary reversals, these trends will continue in the long run and will further invigorate the Turkish economy. The remaining question is then whether this growth will be sufficient to quickly place Turkey among developed countries.

The Turkish economy's size and reach to various global markets makes it resilient and unlikely to falter when faced with one or two unfortunate events. Yet a number of negative economic events could cause this growth to slow or stop. Some of these events are more related to supply chains than others.

Regional Imbalance: A glance at the maps will reveal that most economic activity is taking place in the west of the country. The eastern regions, particularly those bordering Armenia, Iran, Iraq, and Syria, are adversely affected by economic sanctions imposed on these countries and political turmoil therein. Unfortunately, this report primarily concerns Turkey's western regions. If the eastern half becomes economically more active, then supply chains there will expand. This can reduce the strain on the western supply chains, and allow for more efficient and responsive operations. Eventually, Turkish output can quickly increase if it does not double.

Infrastructure Investment: At the current rate of increasing economic activity, infrastructure investment must grow in Turkey. Otherwise, Turkey can easily lose her competitive advantage. Turkish airway and highway networks are extensive and host modern facilities; however, the same is not true for railways. Railways are a cheaper transportation mode with respect to both airways and highways, but they are infrequently used in Turkey. In order to exploit this cost advantage the Turkish railway network must be immediately expanded, fully electrified, and modernized. The deregulation of railways should also be considered. If the railway network can be expanded, modernized and deregulated, transportation costs within the country will drop. This will increase the efficiency of supply chains in the long run.

Expensive Oil: Oil prices are higher in Turkey because of taxes. This unnecessarily increases the cost of truck transportation and makes 3PL companies vulnerable to upswings in the oil price. The state currently attempts to alleviate the situation in piecemeal fashion such as compensating firms for tax on the oil consumed in export activities. If the tax collection and judiciary system can become efficient then the tax on oil should be reduced. If the oil becomes cheaper, trucking costs will drop. With reasonable costs, it will be possible to access markets

and sources in remote locations. Such a growth in both serviceable markets and usable sources will lead to further economic growth.

Dependence on Imported Natural Gas: A significant portion of the natural gas used in homes or at Turkish power plants is imported from a few countries. There is a significant disruption risk in incoming gas flow. Additionally (particularly renewable) energy sources should be made available in order to reduce this extreme dependence on natural gas. Alternative sources (especially wind and solar) can be economical and reduce the energy costs of Turkish industry and supply chains. This will make Turkish goods cheaper and more competitive in the global markets.

Increasing Trade Deficit: Turkey's trade deficit reached \$10.7 billion in June 2011 up from \$5.4 billion a year earlier. This deficit and accompanying public debt is worrying. Increasing exports and producing high value-added goods are necessary in order to reduce the trade deficit. The government is currently taking proactive steps toward this end. For example, the six industries (steel, automotives, chemicals, textiles, machinery, and food) that account for \$30 billion of annual imports have become eligible to receive domestic manufacturing incentives (Ersoy and Bryant 2011).

Domestic Consumer Debt and Foreign Country Debt: Consumer loans and credit card debt respectively increased annually by 42% and 24%, and the latter reached 200 billion TL in July 2011. In order to cool the credit market the Central Bank increased the reserve requirements and decreased liquidity. Some of Turkey's trade partners also have debt problems and recessionary economic environments, and are likely to reduce their consumption. These factors can reduce the domestic and international demands for Turkish goods, and in turn economic growth.

Natural Disasters: Turkey's financial and logistics activities are heavily centered around İstanbul. The authorities have been unsuccessful and sometimes unwilling to distribute these activities to the rest of the country. This heavy concentration not only hinders growth, but also poses a great risk in the event of an earthquake. The northern Anatolia fault line under the Marmara Sea can generate a quake of 7.0 to 7.6 on the Richter scale, and did so in August 1999. Since various industry and logistics zones are located around İstanbul, the potential losses could be too great. When building new facilities in this region firms must diligently conduct earthquake risk analyses. After 1999 the state has made earthquake insurance obligatory, but, as an ex post financial risk mitigation tool, insurance cannot prevent either the human or material losses or disruptions to supply chains. To avoid such disruptions, Turkish supply chains must expand and grow in the rest of the country, especially in the eastern regions.

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- xvi Announced by Skytrack on June 23, 2011, also see www.worldairlineawards.com/Awards_2011/europe.htm.
- xvii The map is at http://commons.wikimedia.org/wiki/File:Turkey_map_modern.png. The source file is in the public domain to copy, distribute and/or modify.
- xviii www.denizcilik.gov.tr/liinanlar/index1.htm.
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^{xxviii} See data codes *tsiir040*, *tsiir120* and *tsiir130* of EuroStat from <http://epp.eurostat.ec.europa.eu>.

^{xxix} World Bank Data on Turkey's Energy use <http://data.worldbank.org/country/turkey>.

^{xxx} <http://www.bp.com/sectiongenericarticle.do?categoryId=9006669&contentId=7015093>

^{xxxi} <http://www.invest.gov.tr/en-US/sectors/Pages/Energy.aspx>

^{xxxii} <http://www.wind-works.org/FeedLaws/Turkey/TurkeyAdoptsLimitedFeedLaw.html>

^{xxxiii} For a recent proposal to interconnect Europe, Middle East and North Africa via a Smart Grid, see <http://www.supersmartgrid.net>.

^{xxxiv} The article features Jim O'Neill, the chairman of Goldman Sachs Asset Management and creator of the term BRIC for Brazil, Russia, India and China. Talking about Turkey along with Mexico, South Korea and Indonesia, he says "It's just pathetic to call these four as emerging markets". The Financial Times article can be accessed from www.ft.com by searching with article's title.