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# REGIONAL INVESTMENT CLIMATE ASSESSMENT REPORT

## TR81 NUTS II REGION Zonguldak – Karabük – Bartın



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## Preface

The Regional Investment Climate Assessment Reports (R-ICAs) are part of a series of analytical products developed for the Regional Investment Climate Assessment Project (RICA Project, P153794) implemented by the World Bank Group (WBG) to reduce the regional disparities that exist in Turkey and contribute to the sustainable development of the country by improving the investment climate at both the national and regional levels. Formulated individually for 26 NUTS-2 regions in Turkey, the reports draw on data mainly from the Regional Enterprise Survey (R-ES) conducted with 6,006 private companies in Turkey between August 2015 and June 2016 and the 2006-2014 Entrepreneur Information System (EIS) compiled and administrated by the Ministry of Science, Industry and Technology.

Bringing together different sources of data, the R-ICA Reports are the first ever effort in assessing the regional investment climate in Turkey using a

common methodology. The Enterprise Survey in particular will not only give regions the opportunity to compare themselves with other regions in Turkey and with overall national performance, but will also allow them to compare themselves internationally with other regions in the world. The objective of the reports is twofold. The first is to provide insight into the constraints of each region for decision makers, and to private and public individuals in the field of development. The second is to provide a baseline for both central and regional agencies in assessing the investment climate upon which they can continue to measure and assess the conditions in which the private sector operates. Indeed, this will help improve evidence-based policy making in the years to come. A synthesis of the findings of R-ICAs will be featured in the National Investment Climate Assessment Report (N-ICA), an additional analytical product developed for the RICA Project.

## Steering Committee/Stakeholders




R-ICAs benefitted from additional comments received from the Development Agencies, Ministry of Economy, Ministry of Science Industry and Technology and Investment Support and Promotion Agency of Turkey, as well as those received from the Ministry for European Affairs, the Undersecretariat of Treasury, the Turkish Statistical Institute, the Central Finance & Contracts Unit and the Delegation of the European Union to Turkey at various stages of the Regional Investment Climate Assessment Project.

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Preparation of the Regional Investment Climate Assessment reports (R-ICAs) was led by Alvaro Gonzalez (World Bank Group (WBG), co-TTL and Lead Economist) and Can Selcuki (WBG, co-TTL and Economist).

Many institutions and people have contributed to the formulation of these reports. The main authors and contributors by section are:

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## Abbreviations

BAKKA	West Black Sea Development Agency
EDAM	Centre for Economics and Foreign Policy Studies
ES	Enterprise Survey
EIS	Entrepreneur Information System
EU	The European Union
FCC	Fully Credit-Constrained
GDP	Gross Domestic Product
HHI	Herfindahl-Hirschman Index
ISO	Investment Support Offices
MENA	Middle East and North Africa
NCC	Not Credit-Constrained Companies
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organisation for Economic Co-operation and Development
OIZ	Organized Industrial Zones
PCC	Partially Credit-Constrained
PES	Public Employment Services
R-ES	Regional Enterprise Survey
RICA	Regional Investment Climate Assessment
R-ICAs	Regional Investment Climate Assessment Reports
SEGE	Socio-Economic Development Index
TIM	Turkey Exporters Assembly
TL	Turkish Lira
TFP	Total Factor Productivity
TurkStat	Turkish Statistical Institute
VAT	Value Added Tax

## Executive Summary

Divided into two subsections, this Executive Summary of the Regional Investment Climate Assessment Report provides an overview of the findings of the analysis done under sections 3 and 4.

The subsection named “Challenges and Opportunities in the Business Environment” focuses on a subset of findings that are covered in Section 3 with data collected directly from private enterprises via the Enterprise Survey tool of the World Bank Group. In this subsection, strengths and weaknesses unique to the sub-region in terms of various aspects of the business environment are emphasized and comparisons between the analytical outputs reported for the sub-region and the national averages are provided. The identification of challenges and opportunities in the business environment will facilitate the formulation of effective strategies to improve the quality of the investment climate in the sub-region.

The second subsection named “Productivity and Competitiveness” includes a selection of conclusions drawn in Section 4 and derived from data obtained from the Entrepreneur Information System of the Ministry of Science, Industry and Technology. In this subsection, the distinguished characteristics of the sub-region’s performance in the following areas are reported: market concentration, emerging and high performing sectors, regional productivity, productivity and dynamics, and trade. The systematic analysis of the local economy at the sector and company level will offer insights on the sub-region’s local market structure and competitive environment, new and emerging economic dynamism, past and current productivity trends and economic efficiency, productivity growth, and trade openness and sources of export growth.

While the particular sections include a more detailed presentation of the findings and extensive discussion, this section aims to provide highlights.

### Challenges and Opportunities in the Business Environment

The R-ES looks at the business environment in which companies operate, identifying the challenges and opportunities they face for sustained private sector growth and job creation, and covers the following topics: physical and communications infrastructure, access to finance, business-government relations, crime and informality, labor market and companies’ perception of the business environment.

The most-cited biggest obstacle to operation for companies in TR81 and for the average company in Turkey is tax rates; 61% of companies in TR81 and 33% in Turkey overall report tax rates as being

the biggest obstacle to their operation. In TR81, licensing and permits are next (12%) followed by crime, theft and disorder (9%). The corresponding figures for Turkey overall are 2.4% and 1.6%, respectively. On average, companies in TR81 seem to be less affected or less concerned by the problems related to political instability than Turkey overall; political instability does not appear in the top 10 most-cited top obstacle for TR81.

Tax rates are cited to be the most significant obstacle most frequently by both manufacturing and service companies. The second and third most frequently reported obstacles, however, differ by sector; 16% of manufacturing companies report tax administration and 7% report transport as their biggest obstacle. For service companies, 14% of companies claim that licensing and permits are the most significant obstacle to their operation, and 10% report crime, theft and disorder.

In TR81 tax rates were most cited as the top obstacle by micro companies (74%), small companies (43%), and large companies (41%). The only exception was medium companies where tax rates are the second-most-cited biggest obstacle (10%). Instead, licensing and permits are the most-cited top obstacle for medium-sized companies (83%). Informal competition is in the top three most cited biggest obstacle for all company size categories with the exception of micro companies. Micro companies are the only size category to cite crime and electricity in their top three most-cited biggest obstacle for companies. Large companies are the only ones to cite courts in the top three, with small and medium companies being the only size categories to cite licensing and permits.

Companies in TR81 are in line with the whole country as they experienced almost no issues with insufficient water supply.

On average, companies in TR81 experience power outages slightly more frequently than the national average, 1.2 times in a typical month as opposed to 0.9 for Turkey overall.

Only around 52% of companies in TR81 have access to the internet, which is slightly below the national average. Private companies in TR81 are also less likely than the average company in Turkey to own a website, with only 18% doing so. However, when it comes to the use of more advanced services provided by the internet, such as online sales platforms, the percentage of enterprises that seize the opportunities presented by internet is considerably higher in TR81, compared with the whole country. Only 6% of companies in Turkey use online sales platforms, compared with 11% of companies in TR81. In TR81 the percentage of companies that own their own website varies by company size, with the higher percentage among small and large companies.

In TR81 only 28% of companies have checking or savings accounts, half the national average. In terms of receiving loans from banks however, TR81 outperforms the national average with 37% of companies receiving a loan, vs. 26% for Turkey overall. The breakdown of use of bank accounts and loans by manufacturing vs. service companies shows that while manufacturing companies in TR81 outperform services companies in terms of having bank accounts, services companies are more likely to receive bank loans. Private companies in Turkey rely heavily on their own sources to finance either working capital or investment. This is however not the case for companies in TR81. On average 86% of working capital financing and 73% of investment financing come from internal sources in Turkey overall. In contrast, just 46% for both working capital and investment is financed by internal financing in TR81. Bank financing is prominent for working capital in TR81 (43%) and supplier credit is prominent for investment financing in TR81 (13%).

31% of companies in TR81 are identified to be fully credit constrained, almost 12 percentage points greater than the national average. Accordingly, 53% of companies in TR81 are categorized as unconstrained as opposed to 72.1% in Turkey overall. Companies in TR81 appear to have limited success in accessing credit.

On average, 5% of companies in Turkey reported creating a new physical facility over the last two years. TR81 experienced much more such activities as 16% of companies interviewed by the R-ES in this region reported creation of a new facility over this time frame. The fact that TR81 seems to have difficulty in providing access to finance and yet sees more creation of new facilities may suggest that there are more factors than just the ease of finding finance which determine a company's willingness and desire to invest in creating physical facilities.

Managers of companies in TR81 spend on average around 11% of their time fulfilling government regulations which is 3 percentage points lower than the national average.

In TR81 senior management of micro and small companies spend on average 12% of their time ensuring their compliance with government regulations, which is half the average for senior management of large companies. In contrast, the managers of medium companies spend even less time, just 1% for this purpose. Apart from large companies, TR81 generally underperforms the national average in making regulations easier to comply with across company sizes. Both expanded bribery incidence and expanded bribery depth indexes are considerably higher in TR81, compared with the national average.

Institutions in TR81 provide faster services to enterprises seeking operating licenses than in Turkey overall. It takes companies on average 1 day

to obtain an operating license in TR81, as opposed to 10 days in Turkey overall. However, construction permits take considerably longer in TR81; 104 days as opposed to the national average of 33 days.

Overall, it appears that businesses in TR81 face more frequent but smaller scale crime than the national average. Companies seem to be responding to this situation with more of them spending on security but doing so only in small amounts.

34% of companies face informal competition in Turkey overall with the figure being much higher in TR81 at 56%. Of the companies that experience informal competition, 42% in TR81 and 5.9% in Turkey overall report no effects from it. About a quarter of the companies in TR81 that experience informal competition are most damaged by infringements of copyrights, trademarks, or patents undertaken by informal competitors, while 13% report fraudulent product certifications as being the most damaging practice.

In TR81, medium-sized companies (employing 20-99 workers) are responsible for the largest share of employment (37%). Large companies are next, contributing 23% of employment, with small companies not far behind (21%). Micro companies (employing fewer than 5 workers) generate 19% of employment. In terms of age, companies between 10 and 30 years old contribute the most to employment (54%). Young companies, those that have been in operation for less than 10 years, follow with a 37% contribution to employment. Old companies (over 30 years old) contribute the least with 8%. Service (retail and other services) companies are by far the biggest employers in TR81, absorbing 66% of employment.

Companies in TR81 experienced on average 28% growth in labor productivity, more than twice the national average. Importantly, medium-sized companies (employing 20-99 workers) experienced the largest labor productivity growth, 44% in TR81. The second fastest growth in labor productivity was delivered by micro companies (employing 4 or fewer workers). by far the least growth was experienced by large companies, growing only by 8% in TR81. Companies across all sizes in TR81 experienced higher labor productivity growth than the corresponding company size categories in Turkey overall.

22% of private enterprises in TR81 had vacancies in the two years prior to the survey. This is similar to the national average of 21%. Half of the companies that had vacancies in TR81 (51%) used PES to fill those vacancies, with only 3% of companies being successful. Finally, female participation in the private sector workforce is low among permanent workers. Only 21% of permanent full-time workers are female in TR81, in contrast to 36% in Turkey as a whole

### Productivity and Competitiveness

The Productivity and Competitiveness section of

this report was prepared using the Entrepreneur Information System of the Ministry of Science Industry and Technology. The World Bank team worked very closely with the Ministry staff in the undertaking of the analysis using this dataset and producing the results.

At first glance, the average company size, measured both in terms of turnover and employment, in sub-region TR81 was consistently higher than the median company size throughout the whole period of analysis (2006-2014). The skewness of both distributions (turnover and employment) was always positive and increased over the same period which indicates the growing presence of large companies in the region. However, the Herfindahl-Hirschman Index (HHI) decreased and was always below 0.25, which suggests that the growing presence of large companies was not being translated into higher market concentration.

A historical perspective of aggregate data suggests a sizeable contribution from gazelles to the local economy. Using the OECD definition of “gazelles”, high performers are defined as young, high-growth companies. Gazelles are companies up to five years old with average annualized growth in turnover greater than 20% per annum, over a three-year period. As of 2009, gazelles contributed up to 6.6% of total turnover (in 2014) and 6.5% of total employment (in 2012). To put things in perspective, the relevance of gazelles in sub-region TR81 was below that of the gazelles from the median region in Turkey in 2014, both in terms of turnover and employment.

The analysis of EIS data offers a number of measures with respect to productivity. In terms of value added per worker, in TR81 the value added per worker decreased until 2009 after which it saw an upward trend, despite the fall in 2012. Value added per worker fluctuated between 9,504 TL (in 2009) and 17,829 TL (in 2014). Overall average aggregate productivity in sub-region TR81 rose steadily over the period under analysis, despite the 2008 drop, suggesting that performance in service and manufacturing sectors tended to move together.

Results for sub-region TR81 show that aggregate productivity growth over the period of analysis was mainly due to high productivity growth companies gaining weight in the region's economy. Except for 2006-2007 and 2008-2009, net entrants always lowered aggregate productivity, suggesting that either less productive companies entered the market or more productive enterprises ceased their operations during the period.

Over the years covered by the data available, the region's trade openness with international markets declined. The technological intensity of the exports from TR81 moved away from medium-low tech products towards medium-high tech products. This can be explained by the sectoral transformation of

TR81 from basic metals to sectors that use metals as input. The share of medium-low tech sectors in total exports decreases from 87% in 2008 to 56.4% in 2014 and was replaced by medium-high tech sectors.

90% of the export growth between 2006 and 2014 can be attributed to the extensive margin, as is expected due to the sectoral transformation of the region. Only 18.2% of the export growth was accounted for by increases in existing products to existing markets and there was also a fall and extinction in the exports of existing products, which caused a 9% decrease in exports. As a result, existing products accounted for a net effect of a 9% increase in the region's export growth. 50% of the export growth was accounted for by new products to existing markets and 38.4% to product diversification in existing markets. In addition, the geographical diversification of the region's exports increased over the period. Companies in the region that were more likely to remain exporting were those exporting resource-intensive products and those exporting to the Middle East and North Africa (MENA) regions. Exporters of resource-intensive products showed better survival performance than exporters of low-skill, medium-skill and high-skill technology-intensive products.

Company size and age is a good predictor of whether a company will export or not: older and larger companies are more likely to have the resources and experience to export internationally and regionally. This relationship between export status and age was evident for international and regional exporters in the region, where older companies were more likely to export, but less evident for company size. The share of exporters and sellers to other regions increased with the age of the companies; companies that are older than 6 years old export more, internationally and regionally. As the companies grow older, they may have established close international or interregional links over time. Alternatively, the plants that could have established export and interregional trade links may have subsequently survived and grown older over time. While large companies are more likely to export internationally, size is less important for regional exports. 55.7% of the exporters were large companies (employing more than 100 people) and only 16.9% were small (employing 3-19 people). Company size was less important for regional exports, where 45.8% were small companies.

Finally, goods intended for export are cleared through customs in 3 days on average in TR81, compared with 4.5 days in Turkey. Imports take a little longer to go through similar process in Turkey as they are cleared on average in 6.8 days. Similar data for imports are not available for TR81 as the sample size of TR81 companies that engage in imports is too small.



## 1. Introduction

A good investment climate provides opportunities and incentives for companies—from micro-enterprises to multinationals—to invest productively, create jobs, and expand. It thus plays a central role in growth and poverty reduction. Private companies—from farmers and micro-entrepreneurs to local manufacturing companies and multinational enterprises—are at the heart of the development process. Driven by the quest for profits, they invest in new ideas and new facilities that strengthen the foundation of economic growth and prosperity. They provide more than 90% of jobs, creating opportunities for people to apply their talents and improve their socio-economic situations. They provide the goods and services needed to sustain life and improve living standards. They are also the main source of tax revenues, contributing to public funding for health, education, and other services. Companies are thus critical actors in the quest for growth and poverty reduction.

Given the importance of a good investment climate to economic growth, the first step towards improving the investment climate is to assess which aspects are strong and which aspects of that climate can be improved. For this reason, the World Bank Group has undertaken numerous investment climate assessments across the world. Investment Climate Assessments, as they are called, identify key constraints to growth in an economy and pinpoint areas for reform. The audience for these assessments are governments, whether national or regional, which have been receptive to these assessments. More governments are recognizing that their policies and behaviors play a crucial role in shaping the investment climates of their economies, and they are making changes. Investment climate improvements have driven growth and resulted in dramatic reductions in poverty. Many governments are taking on the investment climate reform agenda, but progress remains slow and uneven. Governments still saddle companies and entrepreneurs with unnecessary costs, create substantial uncertainty and risk, and erect unjustified barriers to competition. Governments that saddle business operations in their jurisdiction in this way lower growth, reduce investments and stunt job creation. In sum, the Investment Climate Assessment is designed to indicate how the investment climate affects company performance.

In the case of Turkey, the most recent Investment Climate Assessment, published by the World Bank Group in 2010, revealed wide variation in the quality of the investment climate, or business

environment, across regions. The report highlighted how the performance of companies operating in the many regions of Turkey are affected by the varying quality of the investment climate that characterizes each region. Authorities in Turkey arrived at similar conclusions regarding the importance of regional investment climates in the performance of companies, and have made regional development a fundamental policy priority. The Tenth National Development Plan identifies 25 priority transformation programs. One of them is titled the “Business and Investment Climate Improvement Program” and includes a component at the regional level titled: “Improvement of the Governance of the Business and Investment Environment”. This component details the specific

The Regional Investment Climate Assessment Reports (R-ICAs) have been written as part of the Regional Investment Climate Assessment project in Turkey. This project is co-financed by the European Union and the Ministry of Development, and undertaken by the World Bank Group.

objective of “the development of a regular monitoring and evaluation mechanism by developing indicators at national and regional levels, with regards to the business and investment environment.” Indeed, formulation of effective strategies at the regional level requires information on the strengths and weaknesses of each region in terms of various aspects of the business environment, including adequate infrastructure, access to finance, access to labor skills, ability to access and adopt technology, and administrative barriers at the local level.

to update these findings and to inform these new policy efforts, new data on companies has been collected to understand how companies across the regions of Turkey cope with the regional investment climate in which they operate. So, the new data analyzed in these reports brings a fresh perspective on the investment climate at the regional level. Each R-ICA is the result of analysis from two sources of data. The first source are data gathered through the Enterprise Survey tool of the World Bank Group. While the World Bank Group has conducted the Enterprise Survey in Turkey before, this round of the surveys included an unprecedented 6,000 companies spread out to cover each province in Turkey. The Enterprise Survey produced results that are statistically significant at the NUTS-2 level. The second source of data is the Entrepreneur Information System compiled by the Ministry of Science, Industry and Technology of Turkey. Bringing together nine different data sets, the EIS provides the company census for the analysis undertaken.

Additional data sources on provincial investments from the Ministry of Economy and the Regional Development Annual Plans prepared by each Development Agency were used for their respective regions.

Bringing together different sources of data, the R-ICA Reports are the first ever effort in assessing the regional investment climate in Turkey using a common methodology. The Enterprise Survey in particular will not only give regions the opportunity to compare themselves with other regions in Turkey and with overall national performance, but will also allow them to compare themselves internationally with other regions in the world. The objective of the reports is twofold. The first is to provide insight into the constraints of each region for decision makers, and to private and public individuals in the field of development. The second is to provide a baseline for both central and regional agencies in assessing the investment climate upon which they can continue to measure and assess the conditions in which the private sector operates. Indeed, this will help improve evidence-based policy making in the years to come.

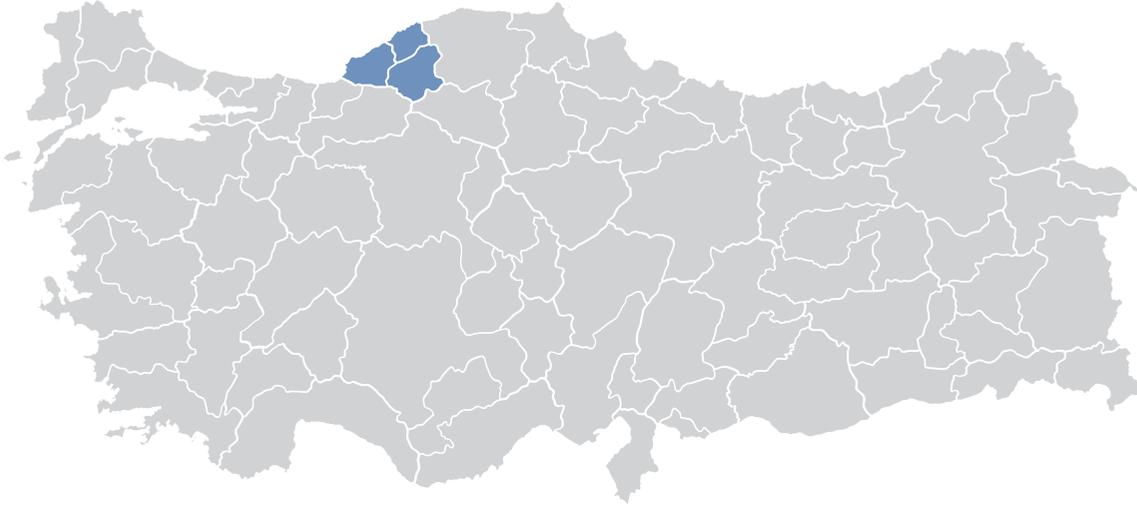
Indeed, R-ICAs will contribute to already ongoing work carried out by the Government of Turkey and the Ministry of Development, in particular, regarding regional development. The Regional Development National Strategy, prepared by the Ministry of Development, sets the goals, vision, objectives and principles of regional development. The vision of the Strategy is, “A Turkey that is socioeconomically and spatially integrated, and that is developed in a more balanced manner with all its regions having high levels of competitiveness and welfare.” Objectives include reducing regional development disparities, enhancing the competitiveness of regions, strengthening economic and social integration, and ensuring there is more balanced settlement across the country. To better target programs, the regions have been divided into settlement categories and each settlement category

has distinct objectives. Horizontal objectives across these settlement categories are:

- Improving the Governance of Regional Development and Strengthening Institutional Capacity
- Developing Cross-border and Inter-Regional Cooperation
- Aligning Public Investment and Subsidy Practices with Regional Development Objectives
- Supporting a Sustainable Environment and Green Economy
- Improving the Transportation Network and Accessibility

Therefore, as mentioned, the data collected and R-ICA reports primarily aid the already ongoing efforts of the Government in regional development.

This report is organized as follows: Section 2 provides an overview of the regional characteristics, drawing information from the Annual Regional Development Plan as well as the provincial investment data of the Ministry of Economy. Section 3 presents the analysis undertaken using the findings of the Enterprise Survey. Having reported findings from a sample of companies in Section 3, Section 4 includes analysis undertaken using the census data from the Enterprise Information System. This analysis, under the title of productivity and competitiveness, looks into five different areas: market concentration, emerging and high performing sectors, regional productivity, productivity and dynamics, and trade.

**Figure 1: Geographical Position of TR81 Sub-Region**

## 2. Regional Overview

### 2.1 General Description and Socio-economic Structure

Sub-region TR81 consists of three provinces: Zonguldak (TR811), Karabük (TR812) and Bartın (TR813). Located in the Western Black Sea region on a surface area of 9,493 km<sup>2</sup>, TR81 is divided into 15 districts and 40 municipalities. As of 2015, TR81 had a population of 1.02 million (0.50 million male, 0.51 million female) and an average household size of 3.2.

TR81 ranked 13<sup>th</sup> of 26 sub-regions in the 2011 Socio-Economic Development Index (SEGE) measured by the Ministry of Development. Gross Value Added per capita was 14,313 TL (\$8,536), in 2011, ranking 10<sup>th</sup> among the regions. As of 2014, the labor force participation rate was 52.6%, employment and unemployment rates were 49.5% and 6%, respectively. Poverty rates were 6.3% and 14.9% when benchmarked to 50% and 60% of median income, respectively (BAKKA, 2013c).

**Figure 2: Sege 2011 Ranking For Cities in the Sub-Region**

Province Number	Province	SEGE 2011 Rank	SEGE 2011 Index
TR812	Karabük	28	0.2916
TR811	Zonguldak	29	0.2758
TR813	Bartın	48	-0.1976

Source: Socio-Economic Development Index, 2011

Prominent economic activities in the region are coal mining and the iron-steel industry. The sectoral share of the mining sector declined however, reaching 25% in 2013 (49% in 2000, 32% in 2009), but the iron and steel sector and its subsidiaries have been gaining momentum. Furniture production and forestry industry as well as the energy sector have also gained importance in the region.

In terms of competitiveness, Karabük, Zonguldak and Bartın ranked 16<sup>th</sup>, 30<sup>th</sup> and 43<sup>rd</sup>, respectively, among 81 provinces in the Competitiveness Index compiled by the Centre for Economics and Foreign Policy Studies (EDAM) in 2014. Zonguldak's highest rank was in the Macroeconomic Environment sub-index (19<sup>th</sup>), and lowest was in the Human Capital sub-index (51<sup>st</sup>). Karabük performed best in the Social Capital sub-index (7<sup>th</sup>), whereas Bartın's highest rank was in the Labor Markets sub-index (22<sup>nd</sup>). Both Karabük and Bartın's lowest rank was in the Market Size sub-index (67<sup>th</sup> and 47<sup>th</sup>, respectively).

While this report focuses on the formal economy, trends in the informal sector are worth noting.<sup>1</sup> Overall informality (measured in terms of labor force) for this region was still above 50% in 2013, with almost no change between 2006 and 2013. This overall weak performance is explained by the dominance of the agricultural sector, with a 96% informality rate. In fact, the performance was better when focusing on the non-agricultural sector, where informality decreased from 31% to 26% over the period (TurkStat).

<sup>1</sup> The Turkish Statistical Institute (TurkStat) and the Ministry of Labor and Social Security report the size of the informal labor force by both region and sectors over the years studied, based on household surveys. The Entrepreneur Information System provides additional details about the distribution of the labor force and sectors within each region as well as the level of employment per enterprise. Combining these sources of information allows the size of the informal economy to be assessed.

## 2.2 Incentive and Fixed Investment

The schemes and rates of the current investment incentive system, which came into force through Council of Ministers Decree dated June 15, 2012 and numbered 2012/3305, vary depending on the location, scale, importance and subject of the investment project. According to the system, investors benefit from the measures totally or partially under four main incentive schemes (general, regional, large-scale and strategic investments) and nine incentive instruments (VAT exemption, customs duty exemption, tax deduction, social security premium support-employee’s share and employer’s share, interest support, land allocation, and income tax withholding support). While the previous investment incentive regime set the locational incentives on the basis of NUTS-2 regions, the new regime shifted to the province-based system (NUTS-3). Accordingly, 81 provinces were ranked and categorized under six regions according to their socio-economic development levels.

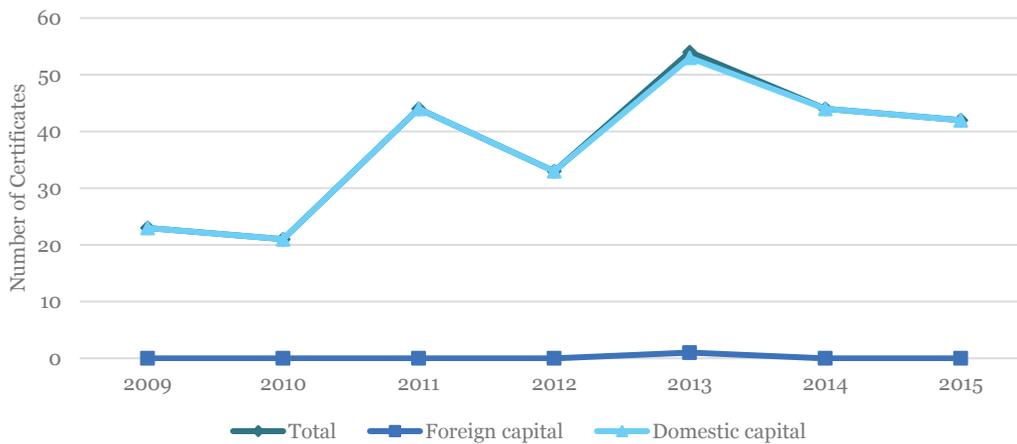
In the TR81 region, Zonguldak and Karabük are part of the 3<sup>rd</sup> region and Bartın falls under the 4<sup>th</sup> region according to the investment incentive system’s classification. Accordingly, rates and terms of the incentives instruments differ in these regions.

In the period between 2009 and 2015, 261 investment incentive certificates were issued for the TR81 region. While 260 of them were issued to domestic companies during the period, only 1 investment incentive certificate was issued to a foreign capital company in 2013. Given the rising number of certificates after 2010, it is observed that private sector investments increased between 2011 and 2013.

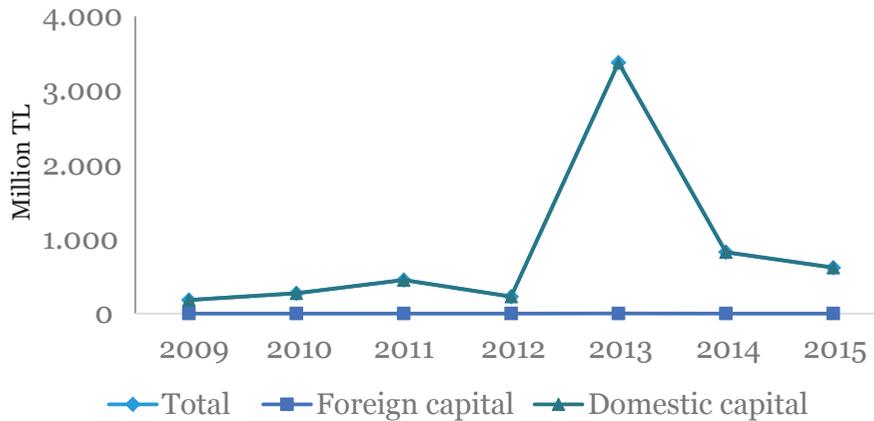
Although the total number of certificates were 44 and 54 for 2011 and 2013, respectively, the projected amount of total fixed investment was not during those years. While 44 certificates were expected to generate 451 million TL of fixed investments in 2011, 54 certificates were projected to generate TL 3,377 million of fixed investment in 2013. Accordingly, the projected amount of fixed investment skyrocketed in 2013 compared with previous years, thanks to a few major investments in the energy sector.

Almost all of the investments in the TR81 region between 2009 and 2015 were conducted with domestic capital. The total amount of projected fixed investment during these years was TL 5.9 billion.

**Figure 3: Investment Incentive Certificates in TR81**



Source: Ministry of Economy, provisional data

**Figure 4: Projected Fixed Investment Amount in TR81**

Source: Ministry of Economy, provisional data

### 2.3 Regional Development Strategic Priorities

The following list is based on the Regional Development Plan prepared by the Western Black Sea Development Agency (BAKKA) in which the region's potential and its challenges are identified (BAKKA, 2013c):<sup>2</sup>

- The agriculture sector is not very developed, but there is potential for beekeeping by virtue of the rich flora in the region.
- Iron and steel production have gained in importance; two large integrated iron and steel plants, Erdemir and Kardemir have become more central to the regional economy over time. Furniture production, the forestry industry and the energy sector have also gained importance in the region.
- The region holds potential for nature tourism (63% of the land in TR81 is covered by forests), cultural-historical (City of Safranbolu, listed as a World Heritage Site by UNESCO), congress and coastal tourism.
- Public and private investment is low and entrepreneurship lacking.
- The topographical structure is not suitable for mechanized agriculture or mining, which leads to low productivity and low/decreasing contribution of those sectors to the economy (agriculture contributed 5.8% of the gross

value added in the region in 2010; mining's contribution declined from 49% in 2000 to 25% in 2013).

- Cost-cutting practices in the mining sector (decreasing wages, diverging to informal labor and reducing work safety measures) lead to declining employment in the mining sector and increasing safety concerns.
- Tourism potential is underdeveloped with insufficient transportation and accommodation, inadequate promotion of the region and lack of qualified personnel.
- Environmental pollution (air pollution, water pollution and waste management) due to unplanned industrialization adversely affects not only tourism activities but also livability in the region.

The first Regional Development Plan was prepared for the 2010-2013 period with a vision for the region to become competitive, and one that expanded its sectoral structure by embracing entrepreneurship, creating new employment fields, and improving quality of life. It formulated six development axes: Developing sectors with potential and transforming the employment structure; Developing environmental standards and improving transportation/infrastructure capabilities; Achieving a competitive status in

<sup>2</sup> In 2006, Law No 5449 legislated the establishment, duties and authorities of Development Agencies under the coordination of the State Planning Organization in 26 NUTS-2 regions. The main purposes of the RDAs were defined as improving collaboration between the public and private sectors, local administrations, universities and civil society organizations; ensuring the proper and efficient use of resources; accelerating regional development in line with national development plans by mobilizing local potentials; ensuring sustainability; and mitigating inter/intra-regional disparities. In accordance with the law, the Western Black Sea Development Agency (BAKKA) was established in 2009. It prepares regional development strategies in coordination and cooperation with the public sector, private sector and non-governmental organizations in its provinces.

logistics; Diversifying and developing tourism; Realizing rural development; Increasing quality of life and urban awareness, and realizing equitable social development (BAKKA, 2010).

The second Regional Development Plan for the 2014-2023 period proposes guidelines for sustainable regional development.<sup>3</sup> The vision of the plan is for the region to brake the dependent economic structure and improve its quality of life. In accordance with this vision, the plan identifies two development axes: Sustainable social development; Sectoral diversity supported by innovativeness and entrepreneurship (BAKKA, 2013a). Supporting strategic priorities are described in Annex 1.

### 3. Challenges and Opportunities in the Business Environment

A key ingredient in any assessment of the private sector is updated representative data collected directly from the main economic agents in the sector itself: enterprises. For the purpose of this assessment the Regional Enterprise Survey (R-ES) was developed to collect data directly from private enterprises. The R-ES combines financial information from enterprises with their own assessment of the constraints they face, as well as their experience navigating the business environment. The data was collected for the purpose of this assessment and therefore it included companies of all sizes, including micro companies, and companies in all sectors of activity, excluding agriculture and mining & quarrying. An additional source of information on the private sector of Turkey is administrative data which is more extensive in terms of financial data. However, this data lacks information on the business environment, tends to be older and is only available for companies with more than 10 employees. Given its greater richness in financial information, this administrative data is used in the Section 4 of this report to establish more accurate indicators of company performance.

This third section relies exclusively on the R-ES data collected by the World Bank Group as a key source of information on the regional differences in the business environment in Turkey. Face-to-face interviews were conducted between August 2015 and June 2016 with 6,006 top managers and business owners in the manufacturing and service sectors across all regions in Turkey, with at least 120 interviews assigned to each NUTS-2 region. The R-ES provides a rich source of information about companies and the environment in which they operate, identifying the constraints they face and the opportunities for promoting sustained

private sector growth and job creation. Topics include infrastructure, access to finance, workforce composition, corruption, crime, business-government relationship, and competition.<sup>4</sup> The R-ES follows the Enterprise Survey (ES) global methodology of the World Bank. Data is representative of Turkey's non-agricultural, non-extractive, and formal private sector, and is fully comparable across NUTS-2 regions and with other ES data allowing the benchmarking of indicators. Annex 10 shows characteristics of the companies surveyed in Turkey, along with details of the standard ES methodology. Annex 11 presents the results disaggregated by size.

#### 3.1 Physical and Communications Infrastructure

A well-developed physical and communications infrastructure, including electricity, gas, alternative sources of energy, water, and internet is central to competitiveness and the growth of an economy. Quality infrastructure efficiently connects companies to markets for inputs, products and technologies. It reduces the cost of production and enhances the competitiveness of companies in domestic and international markets. The R-ES captures the experiences of businesses with the existing infrastructure for energy, water supply, and telecommunications in addition to information on the development of institutions that provide and maintain these public services.

Efficiency in the operation of private businesses requires a reliable supply of electricity. Inadequate electricity provision can increase costs, disrupt production, and reduce profitability. Figure 5 shows the extent to which companies face failures in electricity provision and their effect on sales. Failures in electricity provision are measured by the number and duration of power outages in a typical month, while the cost of poor electricity provision is measured by the percentage of sales lost by companies experiencing power outages. On average, companies in TR81 experience power outages slightly more frequently than the national average, 1.2 times in a typical month as opposed to 0.9 for Turkey overall. Moreover, when power outages occur, they tend to last longer in TR81 than across Turkey (middle panel of Figure 5). Consistent with the higher frequency and longer duration, companies in TR81 report higher losses in terms of sales due to electricity outages than the national average.

<sup>3</sup> All regional development plans for the 2014-2023 period were harmonized to define the regional development strategy consistent with the Turkey 2023 vision.

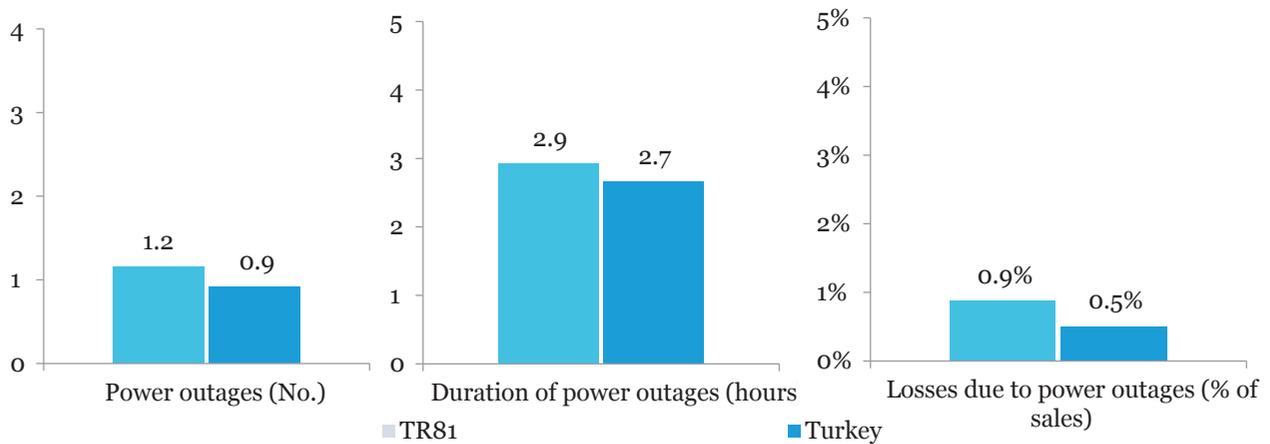
<sup>4</sup> This section of the report focuses only on a subset of topics that are covered by the R-ES. Additional indicators are presented in Annex 11, which also includes a breakdown by company size along with regional and national averages.

to gain a sense of how private companies might compensate for the poor provision of electricity, the R-ES asked business owners and managers whether or not they own or share generators and the extent to which they rely on electricity from generators. Figure 6 reports their responses.

The use of generators as a source of electricity is not common in Turkey: on average fewer than one in 10 companies in the manufacturing or service sectors own or share a generator. When they do own or share a generator, companies derive on average a quarter of their electricity from it. Results for TR81

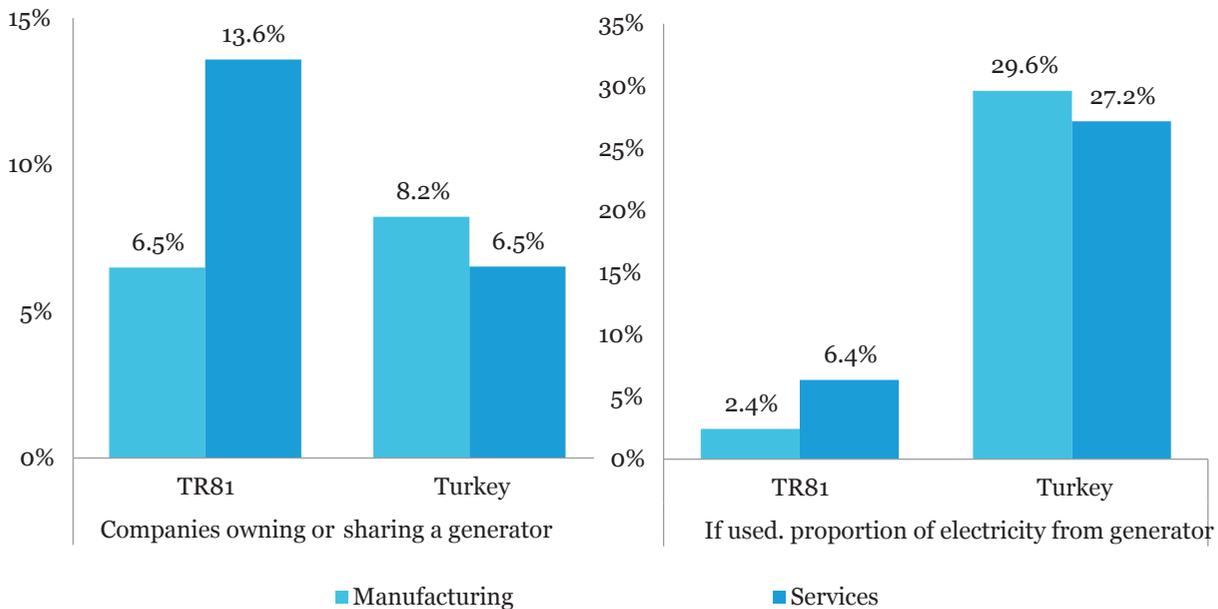
varies by sector. Manufacturing companies in TR81 are less likely to own or share generators than the average manufacturing company in Turkey. They also rely less on generators for their electricity than the average manufacturing company in Turkey. On the contrary, in the service sector more companies rely on generators for electricity in TR81 compared with the national average. An average company operating in the service sector in TR81, however, derives considerably less power from generators, when used, than the average service company in Turkey.

**Figure 5: Reliability of Electricity Provision and Related Losses**



Source: Turkey Regional Enterprise Survey, 2016

**Figure 6: Use of Generators as a Source of Electricity**



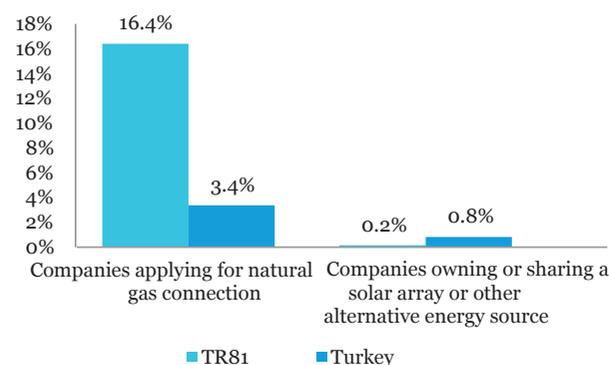
Source: Turkey Regional Enterprise Survey, 2016

The energy production and distribution landscape is experiencing a transformation as sources such as natural gas, solar, and wind power complement, replace and displace other power sources and change the way energy distribution is managed. The R-ES investigates the use of these energy options by asking companies whether or not they have submitted an application to obtain a natural gas connection over the last two years; and whether or not they own or share a solar array or other alternative sources of energy.

As Figure 7 illustrates, 3% of companies in Turkey overall have attempted to obtain a natural gas connection in contrast to a significantly higher 16% of companies in TR81. At the same time, however, companies in TR81 do not seem to have embraced alternative sources of energy. In particular, less than 1% of companies in TR81 reported owning or sharing a solar array or other alternative source of energy.

For many manufacturing industries, water is also

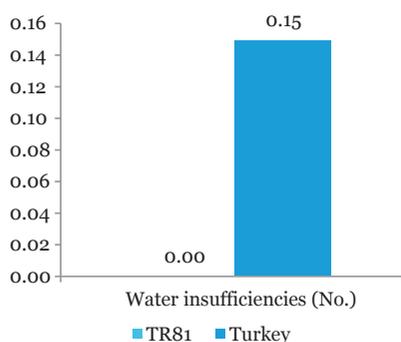
**Figure 7: Natural Gas and the Use of Alternative Sources of Energy**



Source: Turkey Regional Enterprise Survey, 2016

an important input in the production process as interruptions in water provision can have harmful effects on company operations. Figure 8 reports the average number of water insufficiencies experienced by manufacturing companies in a typical month in TR81 and in the country as a whole. The reliability of water supply seems not to be a significant

**Figure 8: Reliability of Water Supply**



\* only for manufacturing companies

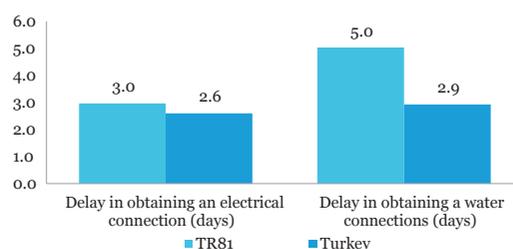
Source: Turkey Regional Enterprise Survey, 2016

problem in Turkey where the majority of companies report zero episodes of insufficient water supply in a typical month. Overall the average occurrence of insufficiencies in Turkey is well under 1 per month. Companies in TR81 are in line with the whole country as they experienced no issues with insufficient water supply.

The availability of quality institutions capable of providing swift access to infrastructure for private enterprises is key for the development of a prosperous private sector. Delays in obtaining access to vital infrastructure impose additional costs on companies and may act as barriers to entry and investment. Figure 9 displays the speed of infrastructure services provision by quantifying the number of days it takes to obtain an electricity and water connection.

Institutions that govern access to electricity or water in TR81 are slower than those in Turkey overall in granting access to private companies upon application. Enterprises in TR81 have to wait on average 3 days to be connected to the electricity grid, and 5 days to be connected to the water supply, while an average company in Turkey waits 2.6 and 2.9 days, respectively.

**Figure 9: Days to Obtain Electrical or Water Connection**



Source: Turkey Regional Enterprise Survey, 2016

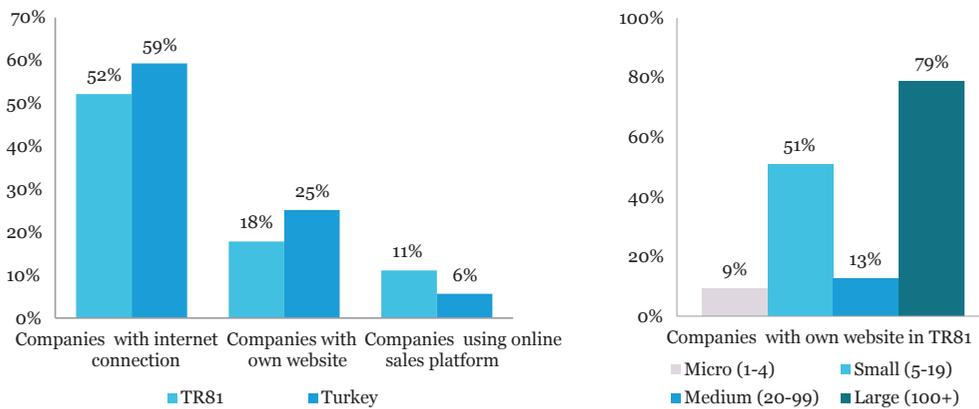
Access to digital technology, in general, and the internet specifically, has opened up vast opportunities for businesses. However, not every company in Turkey has tapped into its full potential. Figure 10 shows the percentage of companies that have internet connections, that own their own websites, and that use on-line sales platforms. Only around 52% of companies in TR81 have access to the internet, which is slightly below the national average. Private companies in TR81 are also less likely than the average company in Turkey to own websites, with only 18% doing so. However, when it comes to the use of more advanced services provided by the internet, such as online sales platforms, the percentage of enterprises that seize the opportunities presented by internet is considerably higher in TR81 compared with the whole country. Only 6% of companies in Turkey use online sales platforms compared with 11% of companies in TR81. As the right panel of Figure 10 illustrates, in TR81 the percentage of companies

that own their own website varies by company size, with the higher percentage among small and large companies.

Similar to energy or transport, the internet has become an essential part of a country’s infrastructure and a factor of production in almost any activity in a modern economy. The internet enables companies to participate in global trade, thus leading to more inclusion; it makes existing capital more productive, thus raising efficiency; and by stimulating competition, it encourages innovation. Providing

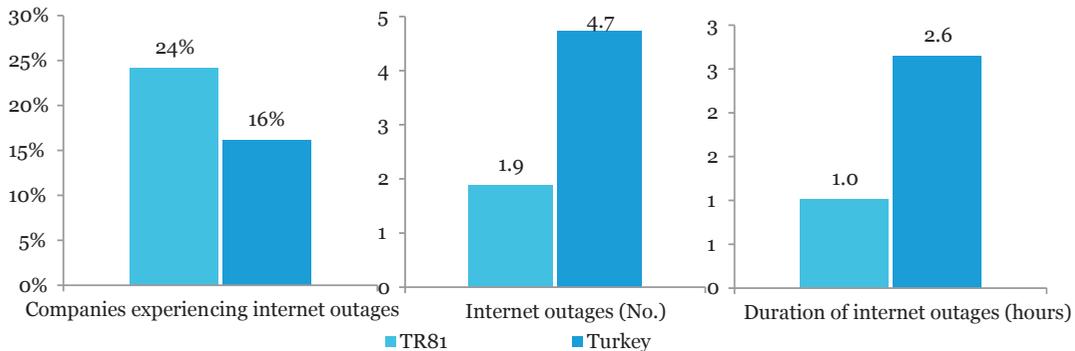
average. The frequency of internet outages on average in TR81 is less than half of that in Turkey overall; 1.9 times a month in TR81 compared with 4.7 in Turkey overall. Outages in TR81 average at hour compared with the national average of 2.6 hours.

**Figure 10: Access to Internet, Web Presence and Use of Online Sales Platform**



Source: Turkey Regional Enterprise Survey, 2016

**Figure 11: Reliability of Internet**



Source: Turkey Regional Enterprise Survey, 2016

reliable internet service is therefore a key element to boosting companies’ productivity and growth. Reliability of digital infrastructure is measured by the R-ES as the percentage of companies that experienced internet outages from the internet provider and the frequency as well as duration of those outages.

Figure 11 displays these measures for TR81 and Turkey. While a greater proportion of companies in TR81 experience internet outages than the national average (24% vs. 16%), the outages are far less frequent and shorter in duration than the national

### 3.2 Access to Finance

Well-developed financial markets provide payment services, mobilize deposits, and facilitate funding for the purchase of fixed assets (e.g. buildings, land, machinery, and equipment) as well as working capital. They also contribute to a company’s decisions to invest in creating new facilities. Efficient financial markets reduce the reliance on internal funds or informal sources, such as moneylenders as well as family and friends, by connecting companies that are creditworthy to a broad range of lenders and investors.

Figure 12 shows two indicators on the use of financial services by private companies: the percentage of companies with a checking or savings account, and the percentage of companies with a bank loan from either private or public banks. The former indicator measures the use of deposit mobilization services which may help companies to manage their liquidity and payments. The second indicator measures the use of credit services. Availability of credit permits the funding of projects that otherwise would be constrained by each company's limited pool of funds. As the left panel of Figure 12 demonstrates in TR81 only 28% of companies have checking or savings accounts, half the national average. In terms of receiving loans from banks however, TR81 outperforms the national average with 37% of companies receiving a loan, compared with 26% for Turkey overall. The breakdown of use of bank accounts and loans by manufacturing vs. service companies (the right panel of Figure 12) shows that while manufacturing companies in TR81 outperform service companies in terms of having bank accounts, service companies are more likely to receive bank loans. In particular, 32% of manufacturing companies in TR81 hold checking or savings accounts, while only 27% of service companies do. In contrast, 21% of manufacturing vs. 40% of service companies receive bank loans. Similar patterns are observed in Turkey as a whole.

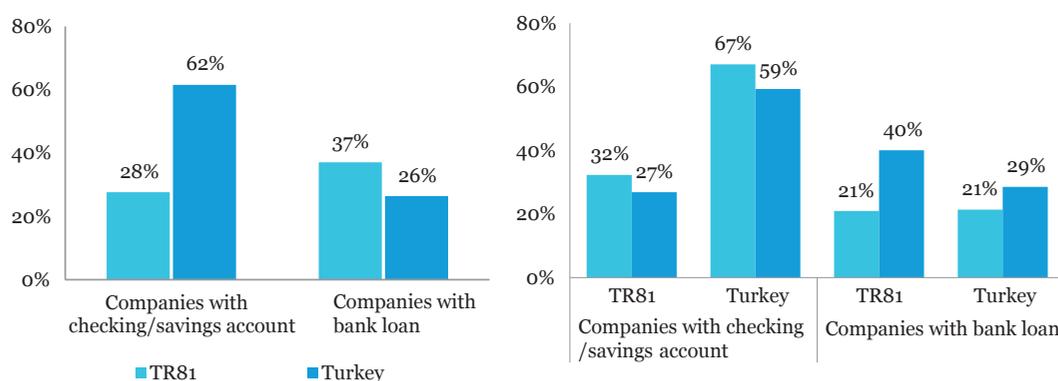
The R-ES provides indicators on the sources of company financing and on the characteristics of their financial transactions. Figure 13 compares the various sources used to finance investments (purchases of fixed assets; left panel) and working capital (right panel). Investments and working capital can be financed by internal sources, banks, supplier credit, or other sources, including non-

bank financial institutions or personal networks. Excessive reliance on internal funds may indicate potentially inefficient financial intermediation.

As Figure 13 illustrates, private companies in Turkey rely heavily on their own sources to finance either working capital or investment. This is however not the case for companies in TR81. On average 86% of working capital financing and 73% of investment financing come from internal sources in Turkey overall. In contrast just 46% for both working capital and investment is financed by internal financing in TR81. In TR81, bank financing is prominent for working capital (43%) and supplier credit is prominent for investment financing (13%). The corresponding figures for Turkey overall are 4% and 1%, respectively.

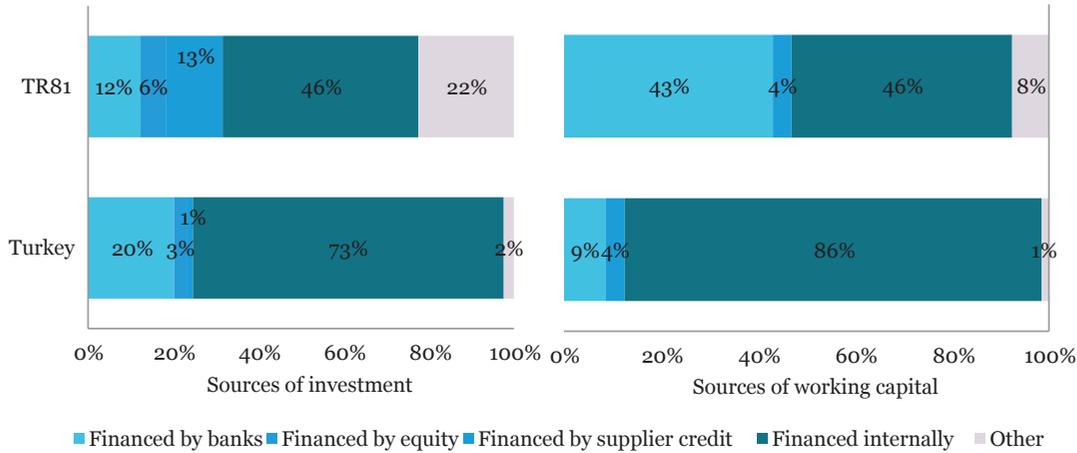
In addition to collecting information on how companies finance their investments and working capital, the R-ES asked top managers and business owners several detailed questions regarding their credit needs, their applications for loans, and the outcomes of these applications. Using this information, a composite indicator can be constructed that measures the degree of credit constraint experienced by companies. In particular, companies can be categorized as follows: fully credit-constrained (FCC), partially credit-constrained (PCC), and not credit-constrained companies (NCC) (see Kuntchev, Ramalho, Rodríguez-Meza, and Yang, 2013 for further details and analysis). A company's being credit constrained includes all kinds of external financing that a company may apply including bank loans. Therefore, while a company may not have used bank loans this does not necessarily imply that it is credit constrained.

**Figure 12: Use of Financial Services**



Source: Turkey Regional Enterprise Survey, 2016

**Figure 13: Sources of Financing of Investment and Working Capital**



Source: Turkey Regional Enterprise Survey, 2016

Figure 14 reports results for TR81 and Turkey. Annex 11 presents the results disaggregated by size.

FCC companies are those that find it challenging to obtain credit. More precisely, they have no source of external financing and typically fall into one of two categories: companies that applied for a loan and were rejected; or companies that do not apply for a loan because terms and conditions were unfavorable. Unfavorable terms and conditions include complex application procedures, unfavorable interest rates, high collateral requirements, insufficient loan amounts and maturities, and a company’s perception that the loan would not be approved.

PCC companies also have challenges in obtaining credit but are successful, to some extent, in raising external financing. Partially constrained companies include companies that have both external finance and have applied for a loan that was either partially approved or rejected; and companies that have external finance but do not apply for a loan from a financial institution due to unfavorable terms and conditions.

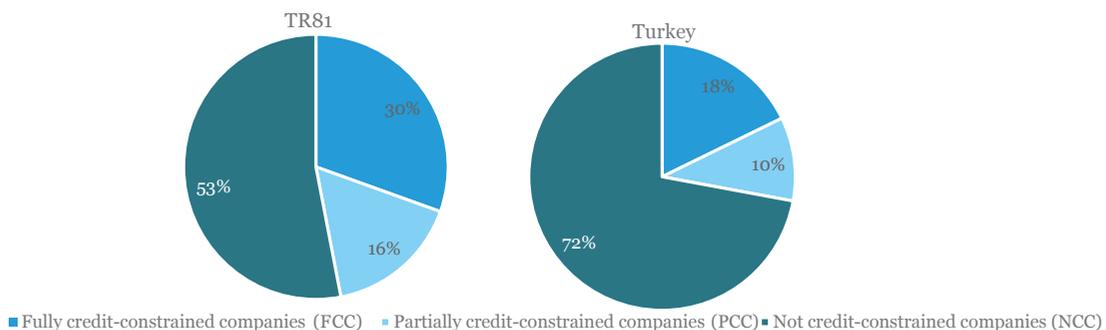
NCC companies are those that do not have difficulties accessing credit or do not need credit. Three types

of companies fall into this category: companies that have sufficient capital and do not need any form of external finance; companies that applied for a loan and whose application was approved in full; and companies that obtained sufficient capital from other external sources and therefore do not need to apply for a loan.

As Figure 14 illustrates, 31% of companies in TR81 are identified to be fully credit constrained, almost 12 percentage points higher than the national average. Accordingly, 53% of companies in TR81 are categorized as unconstrained as opposed to 72.1% in Turkey overall. Companies in TR81 appear to have limited success in accessing credit.

Apart from helping to understand the extent of friction that companies encounter in the process of finding access to finance, the R-ES investigates the level of company investment in creating new physical facilities. Figure 15 illustrates that on average 5% of companies in Turkey reported creating a new physical facility over the last two years. TR81 experienced much more such activities as 16% of companies interviewed by the R-ES in this region have reported creation of a new facility over this time frame. The fact that TR81 seems to have difficulty in providing access to finance, as illustrated by Figure 14, and yet sees more

**Figure 14: Credit Constraints**



Source: Turkey Regional Enterprise Survey, 2016

creation of new facilities may suggest that there are more than just the ease of finding finance which determine a company’s willingness and desire to invest in creating physical facilities.

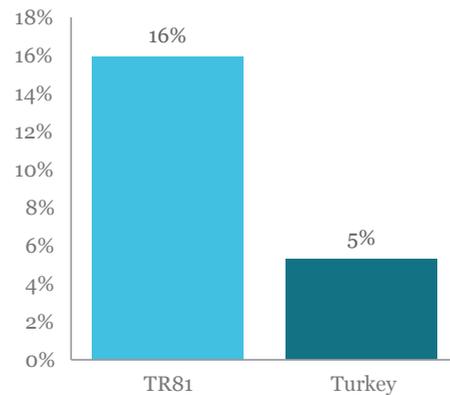
### 3.3 Business-Government Relations

Good economic governance in areas such as regulations, business licensing, and taxation is a fundamental pillar of a favorable business environment. Registered companies pay taxes and are supposed to comply with regulations. Permits and licenses are usually required for businesses to operate, to build new facilities, and to import directly, among other activities. Ideally, these regulations and permits safeguard the general public’s interest while remaining transparent and imposing minimal burden on the private sector.

The R-ES provides quantitative measurements of regulations such as business licensing and taxation. Figure 16 illustrates the “time tax” imposed by regulations, which is measured as the percentage of time spent by senior management dealing with regulatory compliance. The left panel of Figure 16 shows that managers of companies in TR81 spend on average around 11% of their time fulfilling government regulations which is 3 percentage points lower than the national average.

Figure 16 also shows the breakdown of time tax by company size. In TR81, the senior management of micro and small companies spend on average 12% of their time ensuring their compliance with government regulations, which is half the average for senior management of large companies. In contrast, the managers of medium companies spend even less time, just 1%, for this purpose. Apart from large companies, TR81 generally underperforms the national average in making regulations easier to

**Figure 15: Companies Creating New Physical Facility**

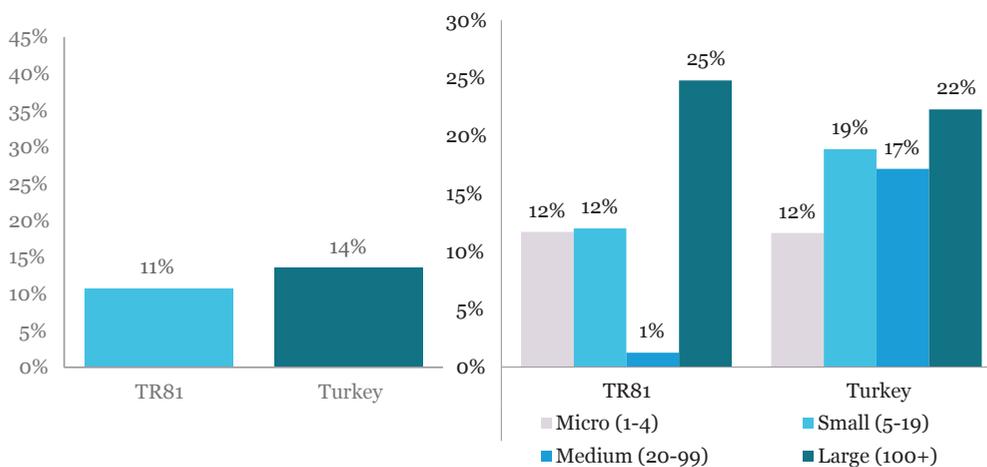


Source: Turkey Regional Enterprise Survey, 2016

comply with across company sizes. Complying with regulations can be costly for businesses. Excessive or inefficient regulations can discourage private sector activity and foreign direct investment.

Figure 17 focuses on the efficiency of business licensing and permit services. The indicators measure the time required to obtain an import license, a construction permit, and an operating license. Delays in obtaining licenses can be costly to entrepreneurs as they add uncertainty and additional costs to much-needed business operations. As Figure 17 shows institutions in TR81 provide faster services to enterprises seeking operating licenses than the national average. It takes companies on average 1 day to obtain an operating license in TR81, as opposed to 10 days in Turkey overall. However, construction permits take considerably longer in TR81 – 104 days in comparison with national average of 33 days. Due to few companies reporting requests for import licenses, there are insufficient

**Figure 16: Time Spent on Dealing with Requirements of Government Regulations**

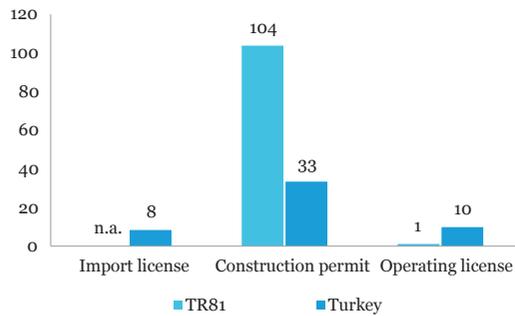


Source: Turkey Regional Enterprise Survey, 2016

observations to calculate this indicator for TR81.

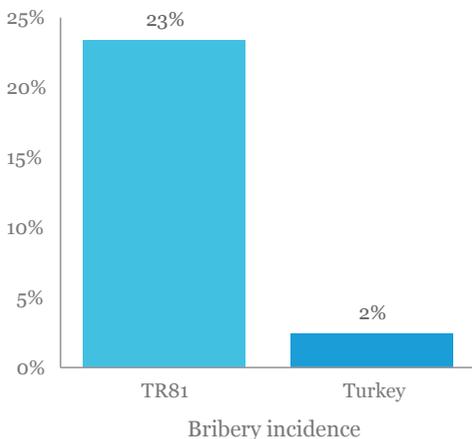
Interactions between businesses and government carry the potential for corruption as government officials are in a position to selectively deny businesses essential services for their operation. Corruption creates an unfavorable business environment by undermining operational efficiency and raising the costs and risks associated with running a private company. Inefficient regulations constrain company operations as they present opportunities for soliciting bribes, where companies are required to make informal payments to public officials to get things done. In many economies bribes are common and quite high, and they add to the bureaucratic costs in obtaining required permits and licenses.

**Figure 17: Number of Days to Obtain Permits**



Source: Turkey Regional Enterprise Survey, 2016

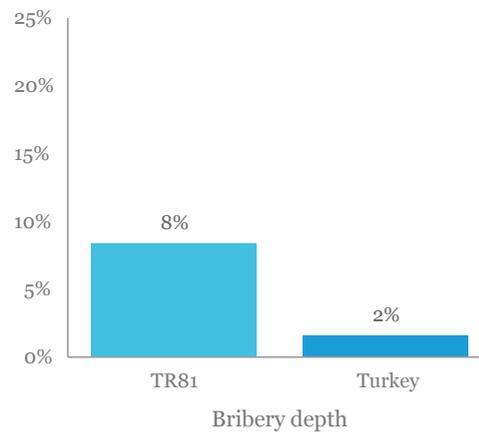
**Figure 18: Expanded Bribery Incidence**



Source: Turkey Regional Enterprise Survey, 2016

The standard ES captures several individual transactions where bribes may be solicited and uses them to build two composite indexes of corruption, incidents of bribery, and bribery depth. The R-ES covers a broader set of transactions and builds expanded versions of the two composite indexes. The expanded bribery incidence, on the in Figure 18, reflects the percentage of companies reporting at least one bribe or informal payment request across twelve different transactions. These include, for instance, the processes of obtaining a construction permit or import license, securing a government contract, or while meeting with tax officials.<sup>5</sup> These types of transactions are common instances where opportunities for bribery occur. The expanded bribery depth (Figure 19) measures the percentage of transactions where companies reported the request of a gift or informal payment. Consequently, expanded bribery depth gives a sense of how widespread corruption is, while expanded bribery incidence indicates how prevalent it is. Indicators disaggregated by size are presented in the tables of Annex 11. Both expanded bribery incidence and expanded bribery depth indexes are considerably higher in TR81 as compared to the country average. Bribes requests were reported by an average of 23 percent of companies in TR81 (2 percent in the whole country) and for an average of 8 percent of transactions (2 percent in the whole country).

**Figure 19: Expanded Bribery Depth**



Source: Turkey Regional Enterprise Survey, 2016

<sup>5</sup> The following transactions are included in the index: obtaining construction, import, or operating licenses or permits; obtaining work permits for foreign employees; obtaining connections for natural gas, electricity, or water; clearing goods through customs during export or imports; applying to lease land or buildings from the government; during meeting with or inspections by government officials; in the process of securing a government contract.

### 3.4 Crime and Informality

Companies can become the target of theft, robbery, vandalism, or arson. Protecting themselves against crime imposes costs as companies are forced to divert resources from productive uses to cover security costs. Moreover, both foreign and domestic investors perceive crime as an indication of social instability, an element that decreases a locality's attractiveness for business. All these factors make incidence of crime an important determinant of the business environment. The R-ES examines the presence and cost of crime by asking companies about their security costs (if any) and losses due to crime (if any), both measured as a percentage of annual sales.

As illustrated by Figure 20, companies in TR81 are more than twice as likely to be paying for security than the average company in Turkey, with 27% of businesses incurring this cost in TR81 as opposed to 13% in Turkey overall. Similarly, the companies that do pay for security pay more on average in TR81 than in Turkey as a whole; 9% vs. 3% of sales. Consistent with the prevalence of security measures in TR81, fewer businesses experience losses due to theft and vandalism; 2% of companies in TR81 compared with 5% in Turkey overall.<sup>6</sup> On the whole, it appears that businesses in TR81 face more frequent but smaller scale crime than is the national average. Companies seem to be responding to this situation with more of them spending on security, but doing so only in small amounts.

When companies are formally registered, they are required to abide by rules and regulations, which are commonly set by governments. Paying taxes is usually the most tangible consequence of becoming part of the formal private sector. Some companies try to avoid such consequences by not registering their business and thereby remaining in the informal

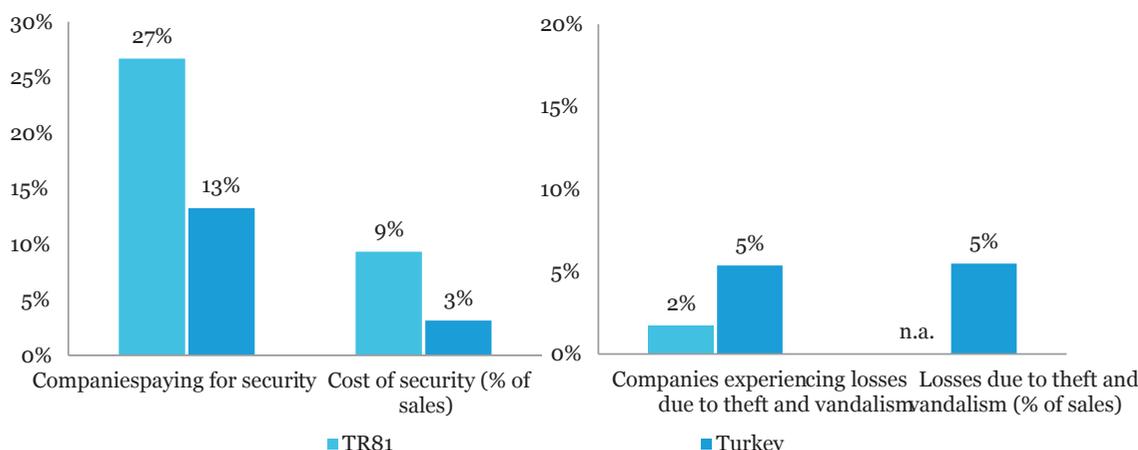
sector. A large informal sector may represent a challenge to competing formal companies as informal companies are able to engage in practices that can give them an unfair advantage over formal companies.

to understand the effects of the informal sector on the business environment, the R-ES examines whether or not companies experience competition from unregistered or informal businesses, and if so, what are the practices of informal competitors that owners and managers consider most damaging to the normal operations of their companies. As Figure 21 shows, 34% of companies in Turkey face informal competition overall, with the figure being much higher in TR81 at 56%. Of the companies that face informal competition, 42% in TR81 and 5.9% in Turkey overall report no effects as a result of it (the panel on the right). About a quarter of the companies in TR81 that face informal competition are most damaged by infringements of copyrights, trademarks, or patents undertaken by informal companies, while 13% report fraudulent product certifications as being the most damaging practice.

### 3.5 Labor Market

The R-ES collects information about a company's workforce, such as the number of permanent full-time employees, the number of temporary employees, the distribution of employees by gender, and the manager's experience working in the sector. The R-ES also identifies the gender of a company's owner or top manager. In addition, the R-ES allows for the measurement of the labor productivity and collects information on labor market dynamics, including the number of vacancies, the means that companies use to fill them, along with details of their successes in doing so.

**Figure 20: Security Costs and Companies' Losses Due to Crime**



Source: Turkey Regional Enterprise Survey, 2016

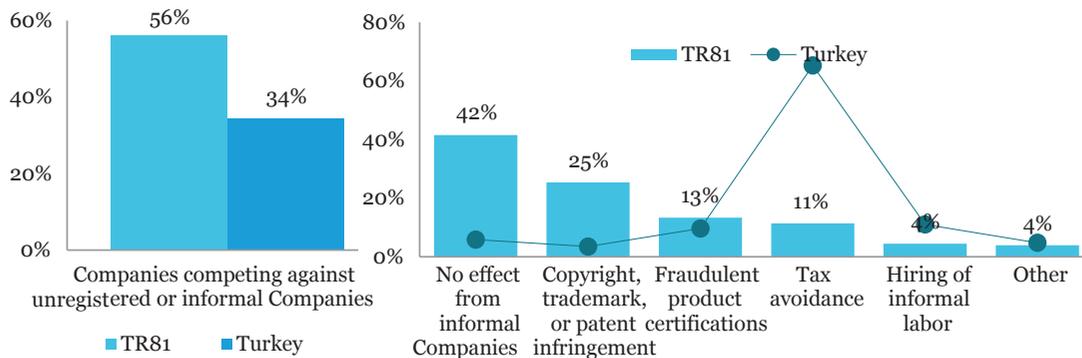
<sup>6</sup> Due to the limited number of companies that experienced theft or vandalism, the indicator on the related losses can not be computed.

Figure 22 illustrates the contribution to employment by companies of different sizes, ages, and sectors. In TR81, medium companies (employing 20-99 workers) are responsible for the largest share of employment (37%). Large companies are next, contributing 23% of employment, with small companies not far behind (21%). Micro companies (employing fewer than 5 workers) generate 19% of employment. In terms of age, companies between 10 and 30 years old contribute the most to employment (54%). Young companies (in operation for fewer than 10 years) follow next with a 37% contribution to employment. Older companies (over 30 years old) contribute the least with 8%. Service (retail and other services) companies are by far the biggest employers in TR81, absorbing 66% of employment.

Labor productivity growth, the annual rate of growth of real sales per worker, is a very important

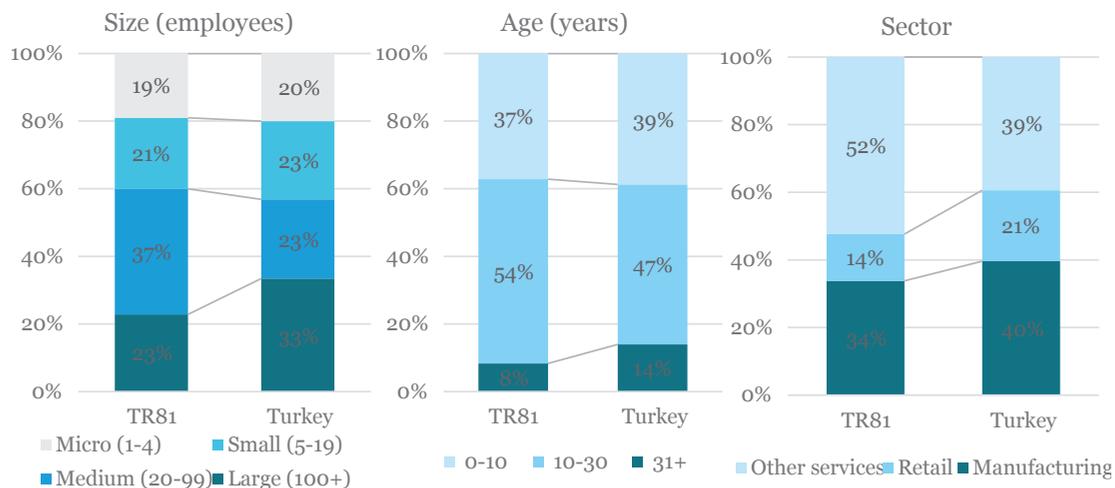
measurement of company performance as it is used as a proxy for how efficiently a company uses its labor inputs. The R-ES enables the tracking of the annual growth of labor productivity over the course of the last two years of a company’s operations (Figure 23).<sup>7</sup> Companies in TR81 experienced on average 28% growth in labor productivity, more than twice the national average. Importantly, medium companies (employing 20-99 workers) experienced the largest labor productivity growth, 44% in TR81. The second fastest growth in labor productivity was delivered by micro companies, (employing 4 or fewer workers), by far the least growth was experienced by large companies, growing only by 8% in TR81. Companies across all sizes in TR81 experienced higher labor productivity growth than the corresponding company size categories in Turkey overall.

**Figure 21: Damaging Practices of Informal Competitors**



Source: Turkey Regional Enterprise Survey, 2016

**Figure 22: Share of Employment by Size, Age, and Sector**



Source: Turkey Regional Enterprise Survey, 2016

<sup>7</sup> Note that this measurement of productivity differs from the measures presented in the next section of this report. While the next section investigates total factor productivity (TFP) and value added per worker, R-ES looks into the revenue per worker and its dynamics. Furthermore, as already mentioned, R-ES enables the measurement of labor productivity and its growth for micro companies (those employing 4 or workers or fewer), which as Figure 23 demonstrates, is a substantial source of employment, both in in TR81 and Turkey in general.

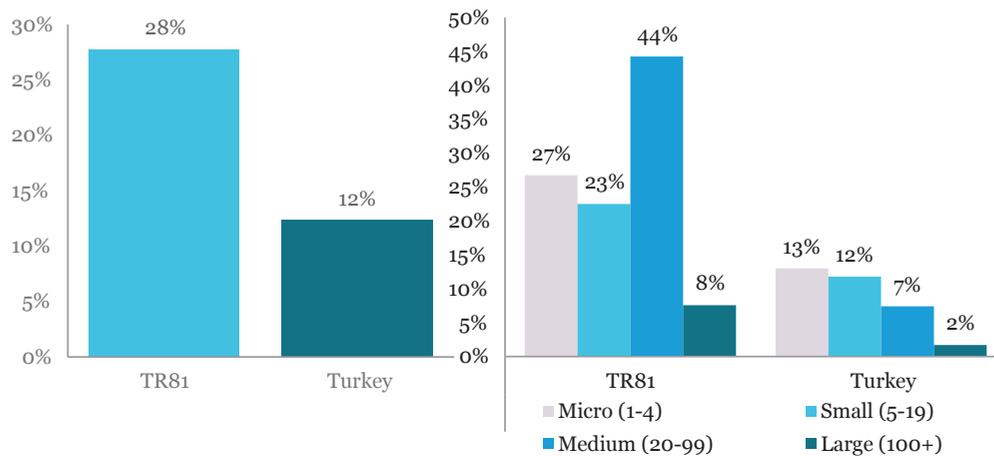
The composition of the workforce, in terms of permanent vs. temporary and in terms of gender is also an interesting element to consider. Figure 24 reports the prevalence of temporary work, along with the gender composition of both permanent and temporary workers. While the use of temporary or seasonal contracts enables businesses to quickly adjust to a dynamic business environment, it entails challenges in terms of job security for employees, depending on employment protection laws and regulations. Differences in employment protection between temporary and permanent employees can create a dual labor market, where permanent employees enjoy high levels of job security and better career prospects, while temporary employees are largely marginalized.

As Figure 24 demonstrates, on average, 6% of companies in Turkey hire temporary or seasonal workers compared with no companies in TR81. Female participation in the private sector workforce is low among permanent workers. Only 21% of

permanent full-time workers are female in TR81, in contrast to 36% in Turkey as a whole. Women employees are more common in companies with a female top manager than in companies run by a male top manager (Figure 25). In particular, 17% of permanent full-time employees are female in male-managed companies in TR81, with the corresponding national average being 33%. In contrast, 48% of permanent full-time employees are female in female-managed companies in TR81, with the national average being 64%.

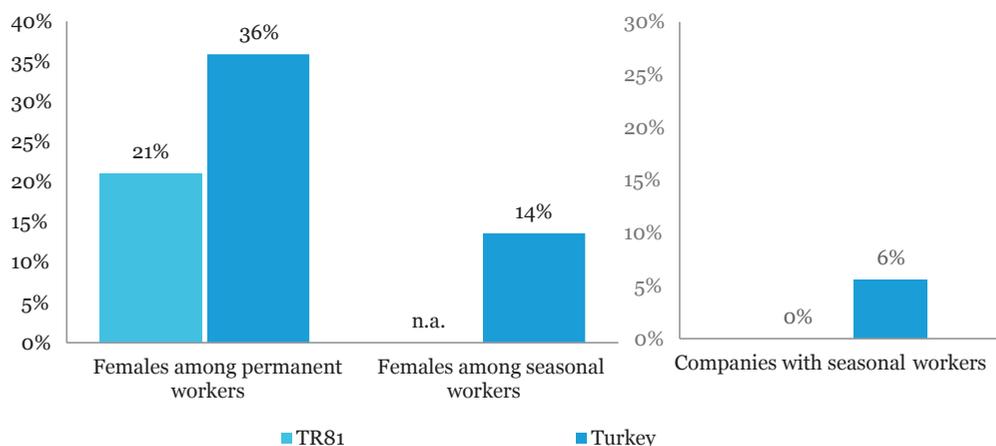
Creating the conditions to unlock women’s skills and expand their opportunities in the private sector is desirable for boosting shared prosperity and for promoting women’s economic empowerment. Besides female participation in the workforce, the R-ES provides two additional measurements of female participation in the private sector: the percentage of companies run by a female top manager and the percentage of companies with female ownership. In TR81, 14% of companies are

**Figure 23: Annual Labor Productivity Growth**



Source: Turkey Regional Enterprise Survey, 2016

**Figure 24: Gender Composition of Workers, and Seasonality of Employment**



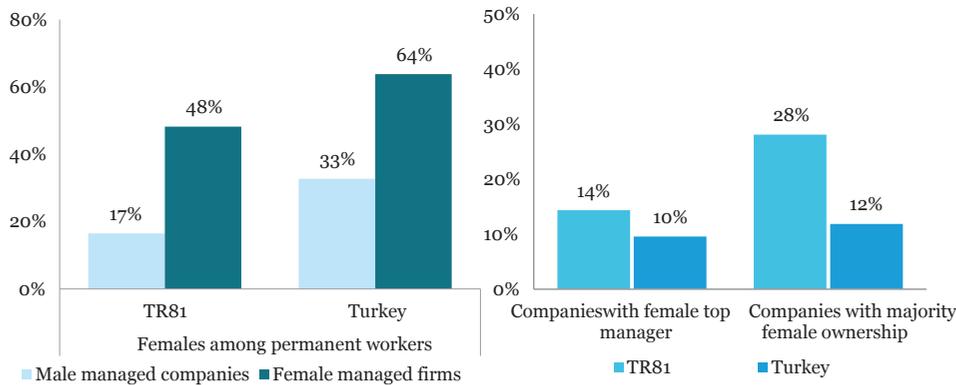
Source: Turkey Regional Enterprise Survey, 2016

managed by a female top manager compared with 10% in Turkey overall (Figure 25). Gender inequality is similarly noticeable in the share of companies owned by females. Only 28% of companies in TR81 and 12% of companies across Turkey are majority female-owned. Large companies have the highest rate of female ownership with 46% of companies being majority female-owned. The service sector is usually considered to be friendlier to women in terms of employment, as well as participation in management and ownership. This is also the case in TR81, where 18% of manufacturing and 30% of

used public employment services (PES) to fill those vacancies, and whether their efforts were successful. Figure 26 presents this information.

As the left panel in Figure 26 illustrates, 22% of private enterprises in TR81 had vacancies in the two years prior to the survey. This is similar to the national average of 21%. Half of the companies that had vacancies in TR81 (51%) used PES to fill those vacancies, with only 3% of companies being successful. Overall in Turkey, a lower percentage of companies use the public employment services, around 20%, and more successfully (almost 1:1).

**Figure 25: Gender of the Manager and Workforce and Female Ownership**



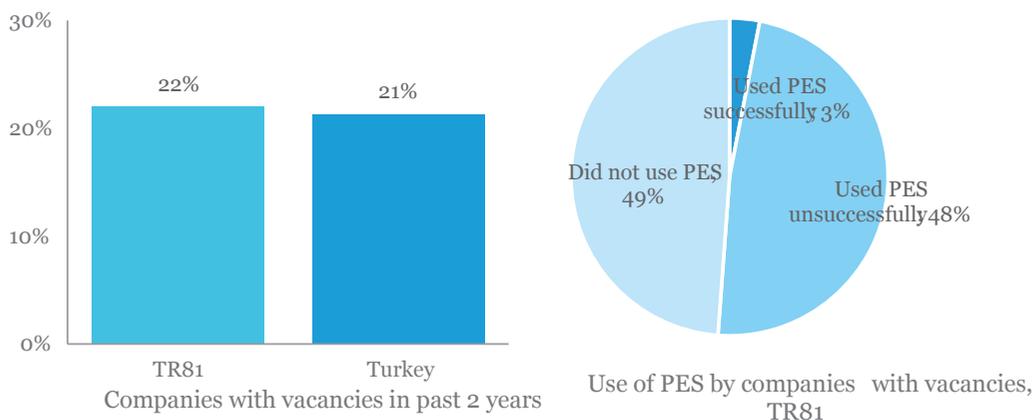
Source: Turkey Regional Enterprise Survey, 2016

service companies are majority female-owned.

An important determinant of the efficiency of the labor market is the availability of vacancies and the ease of filling them. Providing government services for the purposes of facilitating the process of matching between businesses and individuals via public employment agencies has the potential to increase the competitiveness of the entire economy. The R-ES asks companies whether they had vacancies in the last two years, whether they

to investigate the source of labor market friction, the R-ES inquires about the problems that companies experienced in the process of hiring two different types of workers: (i) managers or senior-level professionals; and (ii) non-production technicians, associate professionals, and sales workers. Hardly any companies in TR81 reported trying to hire a manager or other senior-level professional. Consequently, the indicators concerning the problems faced in this process are

**Figure 26: Job Vacancies and the Use of PES to Fill Them**



Source: Turkey Regional Enterprise Survey, 2016

not provided here. There were attempts to hire for non-managerial positions<sup>8</sup>. For such positions, as Figure 27 shows, 87% of the companies that tried to hire for on-managerial positions found the applicants lacked the required skills, which is more than double the national average of 39%. In TR81, 16% cited too few or no applicants as a difficulty in hiring, in comparison to 37% in Turkey overall. Only 3% of companies in TR81 cited wage demands or better working conditions demanded as a difficulty in hiring non-managerial positions. The corresponding figures for Turkey overall are 49% and 18%, respectively.

### 3.6 Companies' Perception of the Business Environment

Most indicators in the R-ES are derived from survey questions that ask businesses for their actual experiences in dealing with the business environment. For example, "How many days did it take to get a permit?" or "How many hours did the power outage last?" The R-ES also includes a small number of survey questions asking business owners or top managers for their subjective opinions regarding the importance of various business environment elements.

For deeper understanding of business perceptions, the R-ES asks respondents to choose the specific element of the business environment that is the biggest obstacle to their operations. The business owners or top managers are asked to select the most significant item from a list of 15 business

environment obstacles. Figure 28 shows the frequency at which the various items are indicated as the top obstacle to the operations of businesses. For illustrative purposes, only the 10 most frequently chosen obstacles are presented.

As Figure 28 demonstrates, the most-cited biggest obstacle to operation for companies in TR81 and for the average company in Turkey is tax rates; 61% of companies in TR81 and 33% in Turkey overall report tax rates as being the biggest obstacle to their operation. In TR81, licensing and permits are next (12%) followed by crime, theft and disorder (9%). The corresponding figures for Turkey overall are 2.4% and 1.6%, respectively. On average, companies in TR81 seem to be less affected or less concerned by the problems related to political instability than Turkey overall; political instability does not appear in the top 10 most cited top obstacle for TR81.

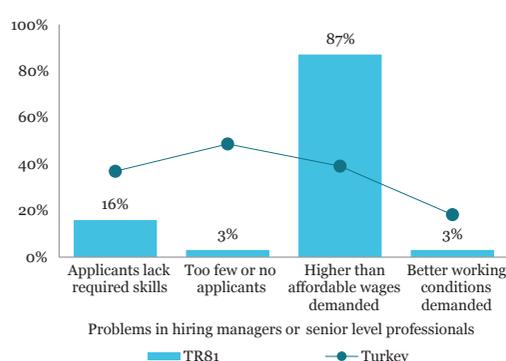
Figure 29 shows the top three obstacles according to manufacturing and service companies separately. As companies from different sectors perform different operations, they may experience the business environment differently.

As Figure 29 shows, tax rates are cited to be the most significant obstacle most frequently by both manufacturing and service companies. The second and third most frequently reported obstacles, however, differ by sector; 16% of manufacturing companies report tax administration and 7% report transport as their biggest obstacle. For service companies, 14% of companies claim that licensing and permits are the most significant obstacle to their operation, and 10% report crime, theft and disorder.

Figure 30 displays the top three obstacles by reported companies of various sizes, namely, micro companies (1-4 employees), small (5-19 employees), medium (20-99 employees), and large (100+ employees). In many economies, the perceptions of managers of large companies are very different from the perceptions of managers of smaller companies. This may be related to the capacity to navigate business environment obstacles; larger companies may have more options when facing obstacles but at the same time they may be more visible and more exposed to failures of the business environment.

In TR81 tax rates were most cited as the top obstacle by micro companies (74%), small companies (43%), and large companies (41%). The only exception is medium-sized companies where tax rates is the second most cited biggest obstacle (10%). Instead licensing and permits are the most cited

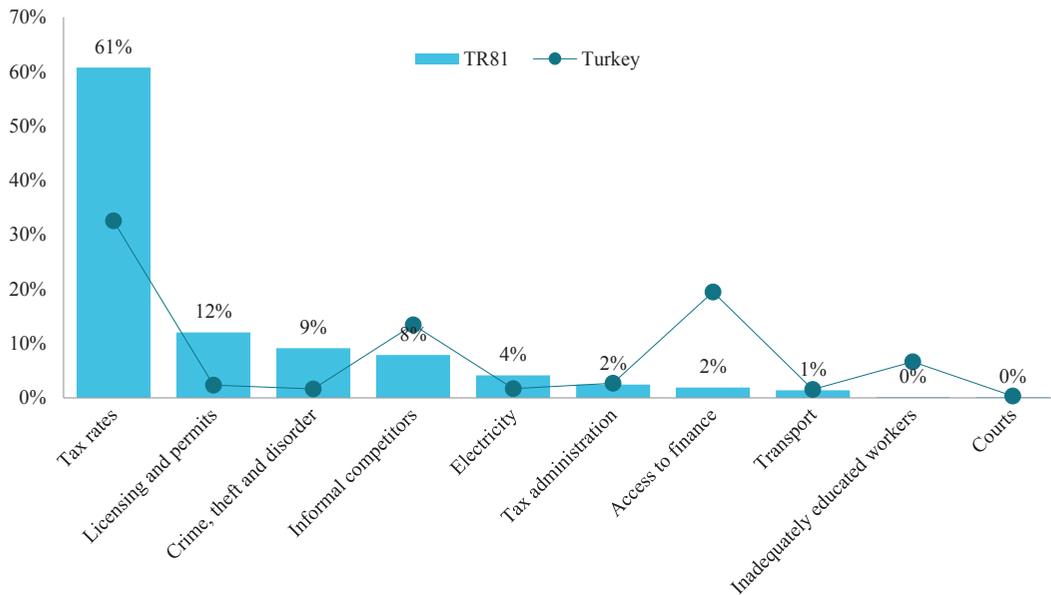
**Figure 27: Problems in hiring for non-managerial positions**



Source: Turkey Regional Enterprise Survey, 2016

<sup>8</sup> The analysis of the problems that companies experienced in the process of hiring non-production technicians, associate professionals, and sales workers is based on a limited number of observations, based on having companies tried to hire workers in this category. Nonetheless, results are presented as they may provide useful insights about skills mismatch. However, results need to be interpreted with some caution.

**Figure 28: Top Ten Business Environment Constraints**



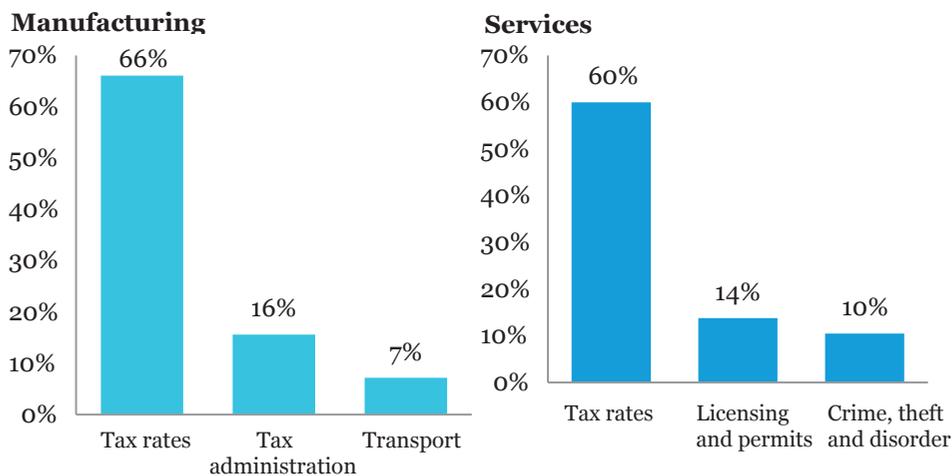
Source: Turkey Regional Enterprise Survey, 2016

top obstacle for medium-sized companies (83%). Informal competition is in the top three most cited biggest obstacles for all company size categories with the exception of micro companies. Micro companies are the only size category to cite crime and electricity in the top three most-cited biggest obstacles for companies. Large companies are the only ones to cite courts in the top three; small and medium companies are the only size categories to cite licensing and permits.

#### 4. Productivity and Competitiveness

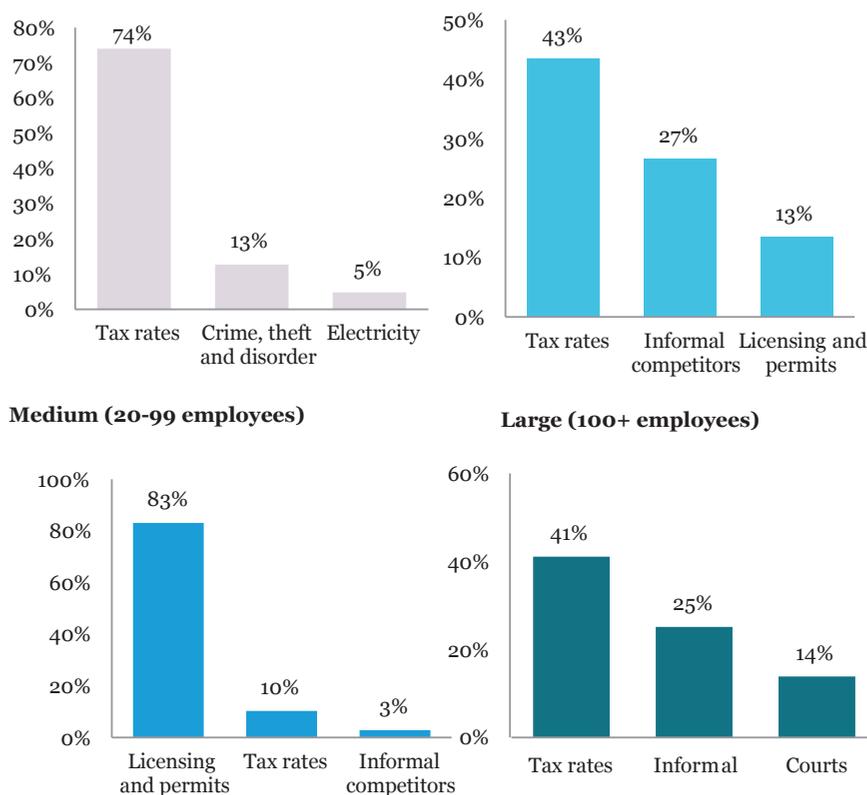
This and the following sections draw on data from the 2006-2014 Entrepreneur Information System (EIS). This database is compiled and administered by the Ministry of Science, Industry, and Technology. The EIS enables a systematic analysis of the regional economy at the sector and company-level. This database also allows both a static and dynamic perspective on the main economic drivers. The dataset includes information for most segments of the economy. However, it omits information on the banking sector, as well as on companies that

**Figure 29: Top Three Business Environment Constraints by Sector**



Source: Turkey Regional Enterprise Survey, 2016

**Figure 30: Top Three Business Environment Constraints by Size**



Source: Turkey Regional Enterprise Survey, 2016

either make purchases for less than 160,000 TL or have annual sales below 220,000 TL.<sup>9</sup> Staff of the Entrepreneur Information System Coordination Unit at the Ministry of Science, Industry and Technology contributed greatly to the analysis done under this section.

#### 4.1 Market Concentration

Competition motivates companies to improve what they do. Those that do improve grow and contribute to the economic development of the country and its regions. A good investment climate encourages companies to invest by removing unjustified costs, risks and barriers to competition. Because of the pressure to respond to competition, companies innovate and improve their productivity, ensuring that the benefits of productivity improvements are shared with workers and consumers. Companies favor less competition, not more. But barriers to competition which only benefit certain companies deny opportunities and raise costs for other companies and for consumers. They can also dull

the incentives for those protected companies to innovate and increase their productivity. High costs and risks can act as barriers to entry. Governments also influence barriers more directly through their regulation of market entry and exit, and their response to companies exhibiting anti-competitive behavior.

The degree of market concentration offers insights on how much competition exists in the regional economy. All other things being equal, higher levels of market concentration suggest that companies may be able to exert market power. When a company is allowed to exert its market power, it can thwart competition and impede development through an inefficient allocation of resources. Because of the importance of competition to the growth and development of a region, several complementary measures of concentration are taken into account to shed light on this issue (Annex 5).

At first glance, the average company size, measured both in terms of turnover and employment, in sub-region TR81 was consistently higher than the

<sup>9</sup> Furthermore, companies without at least one employee registered with the Social Security Information system are also excluded from the analysis, as they lack employment information.

median company size throughout the whole period of analysis (2006-2014). The skewness of both distributions (turnover and employment) was always positive and increased over the same period which indicates the growing presence of large companies in the region. However, the Herfindahl-Hirschman Index (HHI) decreased and was always below 0.25, which suggests that the growing presence of large companies was not being translated into higher market concentration. Markets tend to be classified as (i) un-concentrated if the HHI is below 0.15, (ii) moderately concentrated if it is between 0.15 and 0.25 and (iii) highly concentrated if it is above 0.25.

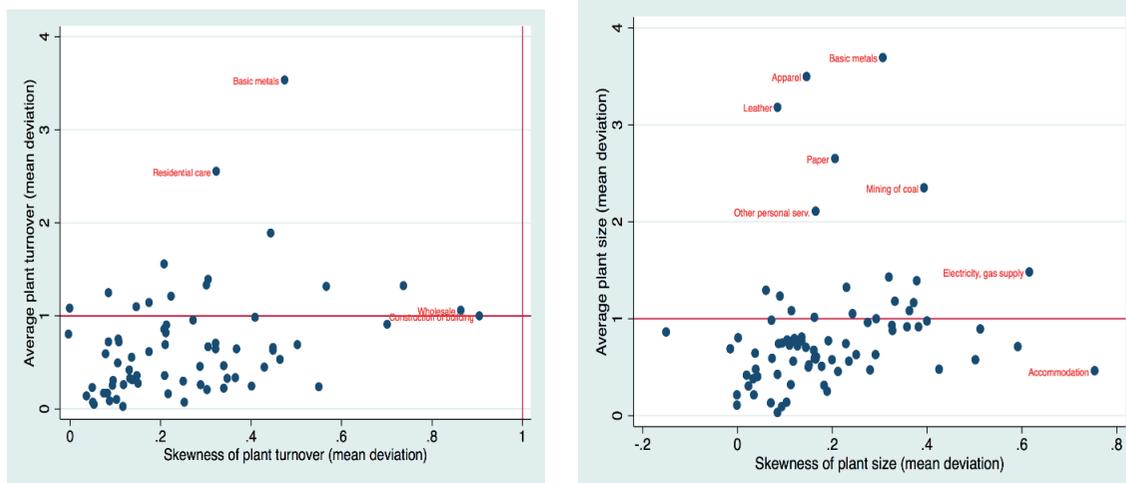
Using sector-level company-size distribution as an approximation of competition, certain sectors stand out as particularly prominent. For example, manufacturing of basic metals showed the highest average turnover (67.10 million TL) and had a relatively high variation in the composition of its companies (measured as dispersion to the mean), indicating that small companies coexisted next to very large companies. Wholesale trade had the second highest average size turnover (though a

Figure 31 plots a measure of dispersion (skewness) against a measure of centrality (average) for each region-industry group.<sup>10</sup> The red lines correspond to the axes. The left panel of Figure 31 displays turnover, while the right panel represents employment. The dots tend to be concentrated in the bottom part of the graph suggesting that most sectors displayed low average employment size while dispersion varies. Manufacturing of basic metals, of apparel, of leather products, of paper products and mining of coal stand out as outliers.

#### 4.2 Emerging and High Performance Sectors

Next, documenting the presence of high performing companies complements findings regarding the local market structure and competition, and provides indications about new and emerging economic dynamism. Using the OECD definition of “gazelles”, high performers are defined as young, high-growth companies. Gazelles are companies up to five years old with average annualized growth in turnover greater than 20% per annum, over a three-

**Figure 31: Degree of Competition in a Given Sector**



Source: Entrepreneur Information System

distant second from the top, 5.30 million TL), and showed limited variation in its composition, which indicates the presence a few large companies.

A graphic representation of the company-size distribution provides an overview of the degree of competition that likely exists at the sector level. This representation also provides a look at the relationship between above-average turnover in a given industry and whether there were just a few or a larger number of highly productive companies.

year period.

Young, high-growth companies can be notable contributors to employment. According to a recent survey of nearly 50,000 companies in 104 countries, SMEs provide as much as two-thirds of all employment, with small companies contributing more to employment in low-income countries than high-income countries. Cross-country research also suggests that small and young SMEs are the net job creators in many countries. (Ayyagari et al., 2014) Recent research (Haltiwanger 2010;

<sup>10</sup> As the sectorial distribution of turnover and employment do not tend to be symmetric, it is preferable to refer to the skewness rather than standard deviation for a proxy of dispersion. For an industry-neutral interpretation of the results, the values are transformed relative to the mean value of the corresponding indicator for each industry across all Turkey's regions

Zarutskie 2013) finds that startups account for a significant portion of job and productivity growth and younger companies disproportionately hire young employees. These findings suggest that policymakers should be promoting start-ups and fast growing young companies (gazelles) to achieve strong employment outcomes

to sustain job growth, productivity growth for SMEs will be important. Research shows that growth and productivity among SMEs varies widely from country to country. While over a life cycle of 40 years, an average company in the U.S. grows by 7 times its initial size, a similar company in India only grows twice its initial size. Such a difference in growth and productivity translates into missed opportunities in increasing the GDP per capita in countries where SMEs face growth constraints. Both business environment (the regulatory environment that governs the cost of doing business) and company-specific factors (entrepreneurship, skills, access to credit and markets) tend to affect the life-cycle growth profiles of companies in different countries.

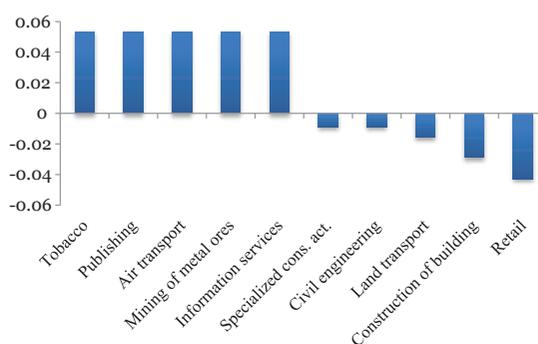
The issue of how young, growing companies contribute to economic development is particularly important for Turkey as it exhibits the highest start-up ratio among 16 OECD countries.<sup>11</sup> This is good given that start-ups are net job creators and particularly so in Turkey with respect to comparator countries. Furthermore, should start-ups survive and manage to grow, their contribution to overall growth increases. However, start-ups in Turkey exhibit below-average survival rates and post-entry growth rates, which points to a missed opportunity.

In this sub-region, gazelles were most likely to be present in sectors like tobacco, publishing, air transportation, mining of metal ores and information services, which take an almost negligible share of the economic activities in the region (Figure 32). Conversely, high performers were least likely to be in the construction sector and retail trade, which made important contributions to the region’s turnover and employment. Industries that provide sizeable contribution to the region’s turnover and employment are not likely to encourage the development of champions. It should be noted that no size restriction was applied when identifying gazelles in the economy.

A historical perspective of aggregate data suggests a sizeable contribution from gazelles to the local economy. As of 2009, gazelles contributed up to 6.6% of total turnover (in 2014) and 6.5% of total employment (in 2012). Over the years studied, the gazelles’ share in total turnover increased, while their share in total employment increased until 2012 after which it remained stable. to put things in perspective, the relevance of gazelles in sub-region

TR81 was below that of the gazelles from the median

**Figure 32: Top 5 Most and Least Likely Sectors With Gazelles**



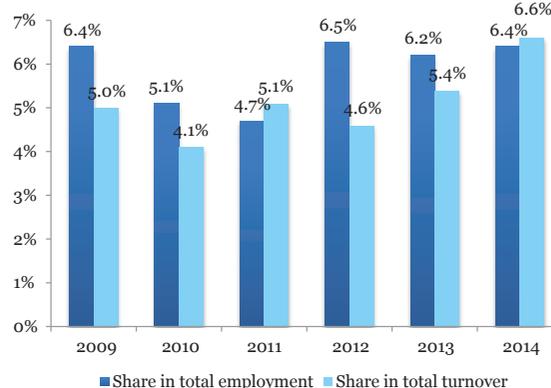
Source: Entrepreneur Information System

region in Turkey in 2014, both in terms of turnover and employment.

### 4.3 Regional Productivity

Productivity is one of the main drivers of long-term economic growth. The ability to improve local standards of living over time depends almost entirely on raising the level of output per worker (Krugman, 1994). A wide array of measures is available to capture the multiple dimensions of productivity. Annex 6 provides a detailed analytical description

**Figure 33: Share of Gazelles in Region’s Total Turnover and Total Employment**



Source: Entrepreneur Information System

of the various instruments used. Irrespective of the indicators used, a good understanding of past and current productivity trends provides insights into the efficiency of the local economy and the ability of local companies to compete.

Value added per worker offers a basic but effective summary of the degree of labor productivity across all sectors in the economy. In sub-region TR81, the value added per worker decreased until 2009 after which it saw an upward trend, despite the fall in

11 Austria, Belgium, Brazil, Costa Rica, Denmark, Finland, Hungary, Italy, Luxembourg, The Netherlands, Norway, New Zealand, Portugal, Spain, Sweden and Turkey.

2012. Value added per worker fluctuated between 9,504 TL (in 2009) and 17,829 TL (in 2014). For a more complete picture of regional productivity, total factor productivity (TFP) or aggregate productivity, takes into account not only labor but also capital inputs. However, it is important to acknowledge that the measure is applicable only to the manufacturing sector. TFP performance in sub-region TR81 rose steadily over the period of analysis, despite the 2008 drop, suggesting that performance in service and manufacturing sectors tended to move together.

#### 4.4 Productivity and Dynamics

A more disaggregated and dynamic analysis of productivity provides additional insights into how companies reallocate resources, improve efficiency, and enter and exit the market. Understanding how productivity across companies drives the reallocation of output, workers and capital from worse to better performing companies is key to shedding light on the implications for aggregate, regional productivity growth.

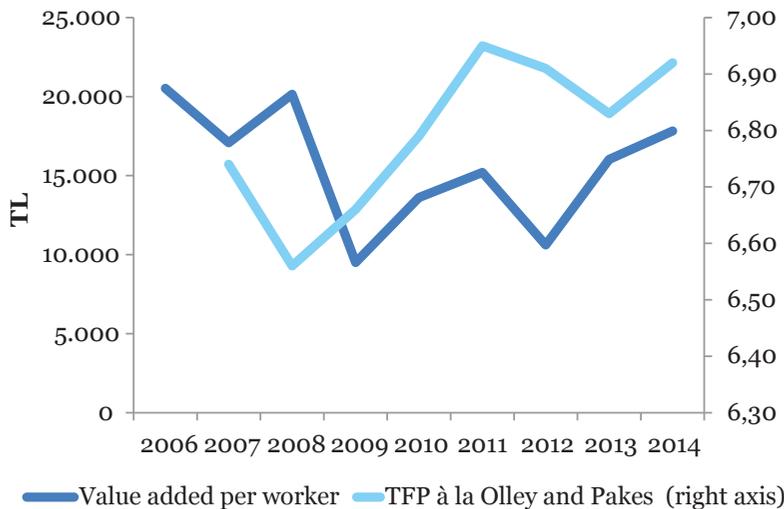
Against this backdrop and drawing on the methodology originally suggested by Foster, Haltiwanger and Krizan (2001), company-level data is broken down into the following four components of productivity growth: (i) productivity gains that stem from changes within existing companies (the “within” effect) where companies become better at what they do, (ii) gains in aggregate productivity that stem from higher relative growth of companies with

higher productivity-levels (the “between” effect), (iii) gains in aggregate productivity that stem from the reallocation of resources across existing companies, when high-productivity-growth companies gain market share (the “covariance” effect) and take it away from lower performing companies whether the market is growing or not, and (iv) company turnover, where new, more-productive companies enter and obsolete companies exit (the “net entry” effect).<sup>12</sup>

Results for sub-region TR81 show that aggregate productivity growth over the period of analysis was mainly explained by a positive “covariance” component, suggesting that high productivity growth companies gained weight in the region’s economy. The “between” term was negative over period, mitigating the positive performance in aggregate productivity. Except for 2006-2007 and 2008-2009, net entrants always lowered aggregate productivity, suggesting that either less productive companies entered the market or more productive enterprises ceased their operations over the period. Annex 8 provides a more complete, technical discussion of how these measures of productivity dynamics were compiled.

What these dynamics show are the underlying sources of productivity growth. In a healthy economy, companies are continuously looking for ways to reduce costs. In this quest, some succeed and some do not. When a company succeeds, a healthy

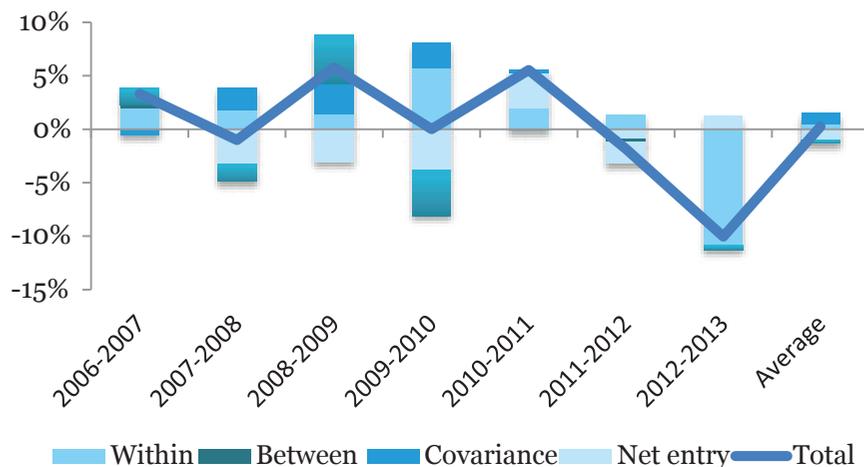
**Figure 34: Regional Averages of Selected Productivity Measures**



Source: Entrepreneur Information System

<sup>12</sup> Interested readers may refer to Annex 7 for additional technical details.

**Figure 35: Aggregate Productivity (TFP) Growth Decomposition**



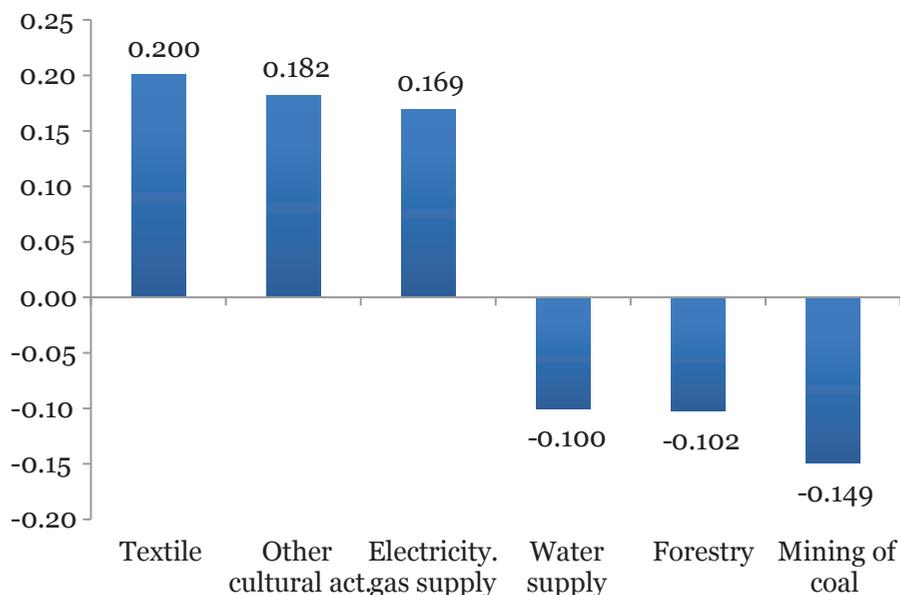
Source: Entrepreneur Information System

economy will allow that company to grow and draw resources away from those companies that did not succeed in being more productive. The movement of the factors of production and market share to successful companies and away from less successful ones is often referred to allocative efficiency of an economy or sector. Therefore, allocative efficiency is an important benchmark in the functioning of an economy or sector. Because of this importance,

the following analysis compares allocative efficiency across sectors in the region.

Manufacturing of textile products showed the highest allocative efficiency. On the other side of the spectrum, resources do not appear to have been efficiently allocated in mining of coal and forestry and logging activities.

**Figure 36: Top and Bottom Three Sectors in Terms of the Allocative Efficiency of Value Added Per Worker**

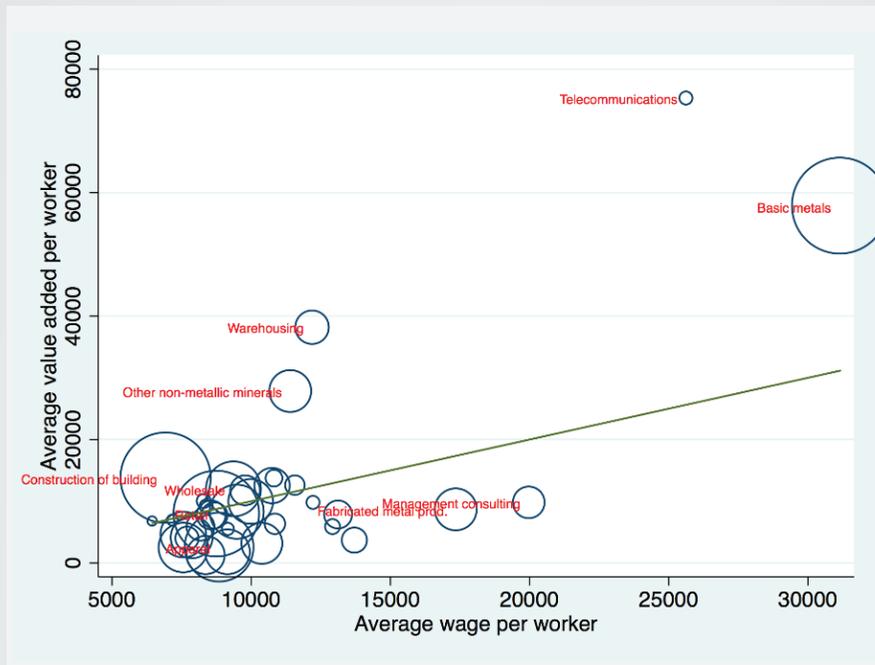


Source: Entrepreneur Information System

### Box 1. Employment: Features from the Entrepreneur Information System

As of 2014, the top five sectors for employment in sub-region TR81 were basic metals manufacturing, wholesale and retail trade, land transport and construction. Among them, manufacturing of basic metals had the highest average value added per worker, 3.1 times higher than the region's average. This sector also had the lowest unit labor cost, but the highest average wage per worker. This suggests that manufacturing of basic metals attracts qualified staff able to command higher wages (219% above the regional average) and generate significant output.

**Figure 37: Correlation Between Wage and Value Added (2014)**



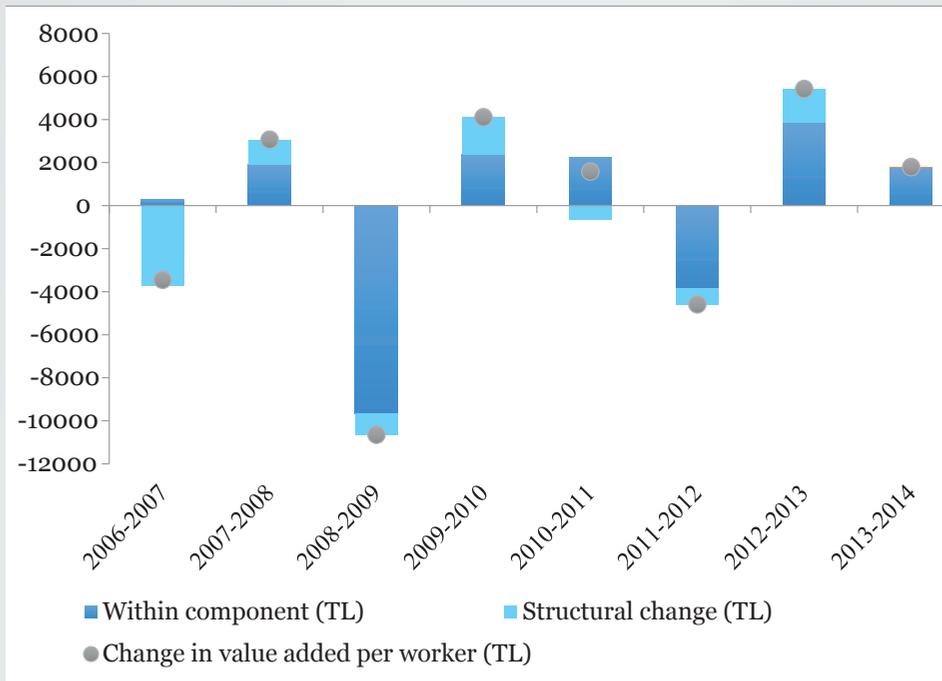
Source: Entrepreneur Information System

Note: bubble size proportional to employment, monetary values are in TL

Sectors may differ not only in terms of their contribution to employment creation but also with respect to the degree of competitiveness of their respective labor markets. Figure 37 helps to shed light on the latter. It plots a measure of labor productivity (value added per worker) against wage, taking into account the level of employment in each sector. Scatters dots closer to the 45° (green) line correspond to more competitive sectors. Notable exceptions are telecommunications, manufacturing of basic metals, manufacturing of other non-metallic minerals and warehousing, where workers command a salary below their average value added.

Further analysis is needed to assess whether employment is moving towards less or more productive sectors. To this end, labor productivity growth is decomposed in two main factors: (i) the contribution to productivity growth from within-sector productivity increase and (ii) the contribution from structural change, i.e. the reallocation of labor from low to high productivity sectors (Annex 9)

**Figure 38: Sources of Labor Productivity Growth**



Source: Entrepreneur Information System

Figure 38 shows that labor productivity performance in sub-region TR81 experienced a volatile pattern throughout the period, alternating between positive and negative performance. When adopting a long-term approach and decomposing the overall labor productivity from 2006 to 2014, results showed that value added per worker declined and the structural change was the main driver of this negative performance, accounting for almost 64% of this productivity loss. Overall, this means that labor was reallocated from high to low productivity sectors.

## 4.5 Trade

An economy which is open to trade allows its business to have access to possibly better and less expensive inputs, new production and management techniques, new and emerging technologies and all kinds of goods and services that support productive activities. While businesses may not like it, competition from outside competitors keeps them in constant endeavors to do things better than before. When successful, these endeavors to do things better make an economy grow and be more productive. In sum, these are a number of economic advantages for business to have access to outside markets than those in the immediate area and for outside markets to have the opportunity to compete for customer in the region as well. For these reasons, trade (both domestic and international) is the next focus of analysis. This section takes a look at the trade both at the regional and the company level. At the regional level, the first focus is on the evolution of the region's exports and the region's trade openness. It then looks at exports with respect to sectors as well as with respect to technology content. In order to identify the sources of export growth, this section also includes looks at the intensive and extensive margins of export growth. At the company level, this section takes a look at export destination and exporting density. Furthermore, it establishes a link between the size and age of a company and its export destinations. The section concludes by looking at the survival rate of exporting status for companies.

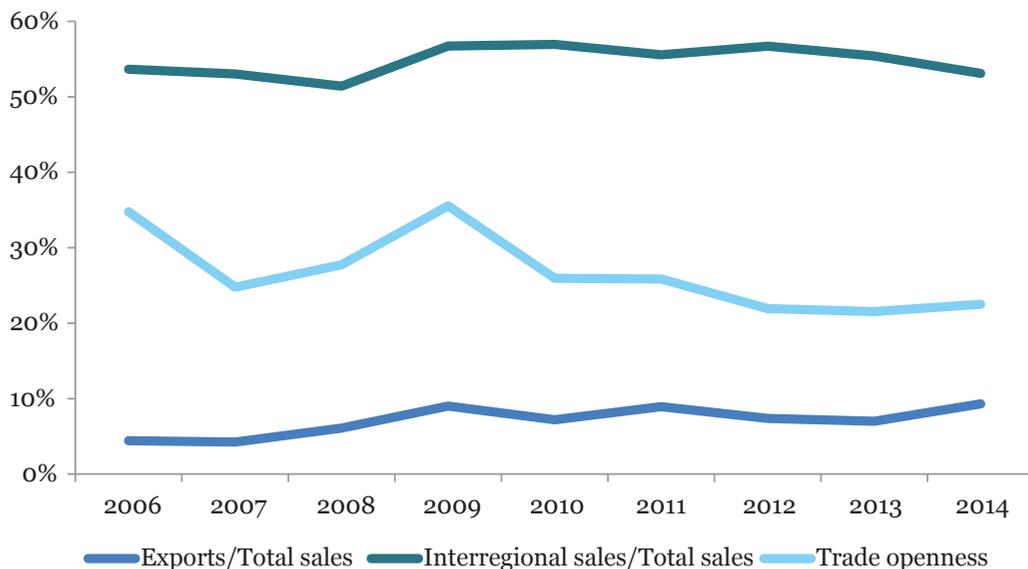
### 4.5.1 Trade Performance of the Region

Over the years covered by the data available, the region's trade openness with international markets declined. Trade openness, measured as the share of total value of international exports and imports to total sales, declined from 34.8% in 2006 to 22.5% in 2014. Regional markets were more important to the region than international markets. Total sales of the region to international markets and to other regions in 2006 were 4.4% and 53.7%, respectively. The exports to total sales ratio increased to 9.3% in 2014 whereas sales to other regions remained stable at 53.1% (Figure 39).

Logistics connections in the region are relatively well developed. The region has six ports (four in Zonguldak and two in Bartın ). Maritime transport for passengers is not well developed in the region. There is only one airport (Zonguldak Airport). Zonguldak and Karabük have railway connections (BAKKA, 2013c).

While the ranking of the top five exporting sectors changed over time (Figure 40), exports became important in the “support activities for transportation” sector, where the exports to turnover ratio increased sharply in 2008 and was at 26.6% in 2014, shifting from the fifth top exporting sector to the fourth top sector in 2014. The electrical equipment sector saw an increase in the exports to turnover ratio from 18.7% in 2006 to 35.3% in 2014. There was a large drop in the exports to turnover ratio in the other transport equipment sector in 2012.

**Figure 39: Share of Exports in Regional Gross Value Added and Region's Trade Openness**



Source: Entrepreneur Information System, TurkStat

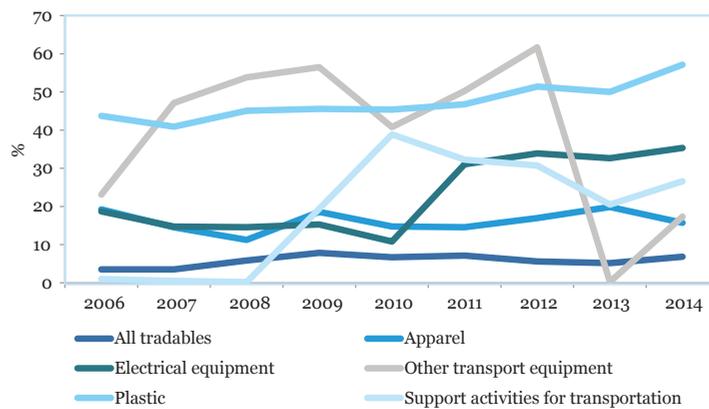
The technological intensity of the exports from TR81 moved away from medium-low tech products towards medium-high tech products (Figure 41). This can be explained by the sectoral transformation of TR81 from basic metals to sectors that use metals as input. The share of medium-low tech sectors in total exports decreased from 87% in 2008 to 56.4% in 2014 and was replaced by medium-high tech sectors.

Export growth can be disaggregated into different components that relate to how much the region is exporting in existing product categories and existing markets (intensive margins) and how much the region is exporting in new product categories and new markets (extensive margins). Export diversification, both in terms of product and geographical location, has been one of the major goals for the government and TIM (Turkey Exporters Assembly), especially after the slowdown in the EU region and the increased geopolitical risks in the Middle East and Northern Africa regions.

90% of the export growth between 2006 and 2014 can be attributed to the extensive margin, as is expected due to the sectoral transformation of the region (Figure 42). Only 18.2% of the export growth was accounted for by increases in existing products to existing markets and there was also a fall and extinction in the exports of existing products, which caused a 9% decrease in exports. As a result, existing products accounted for a net effect of 9% increase in the region's export growth. 50% of the export growth was accounted for by new products to existing markets and 38.4% by product diversification in existing markets.

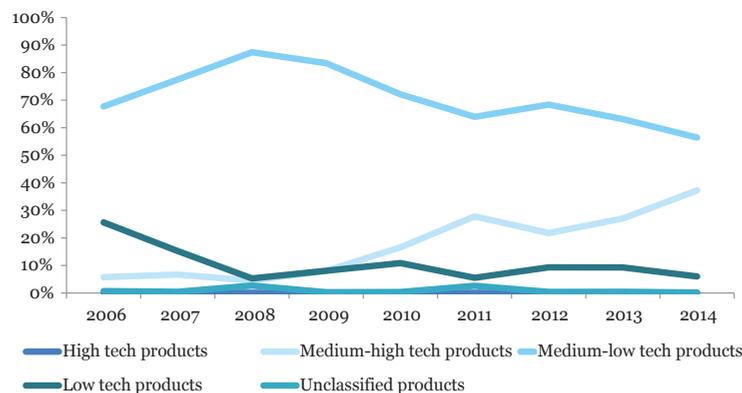
The geographical diversification of the region's exports increased over the period. The region's export destination was at a higher level of diversification in 2014 than in 2006.<sup>13</sup> The region's highest share of trade was with Turkey's neighbors in Europe. In 2014, the top export destination was Germany which captured 13.2% of the export shares and an export value of 0.47 billion TL. Neighboring

**Figure 40: Contribution of Exports to Turnover (2006-2014, Region and Top 5 Sectors)**



Source: Entrepreneur Information System, TurkStat

**Figure 41 Technological Classification of Exports**



Source: Entrepreneur Information System, TurkStat

Note: the products are classified by the technology according to an OECD definition

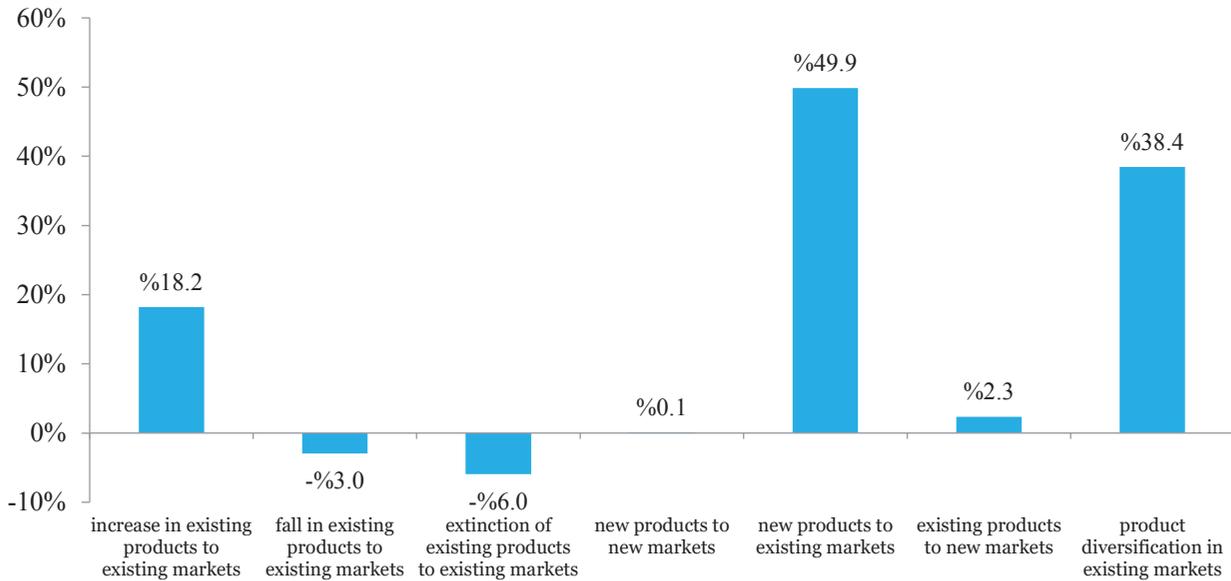
<sup>13</sup> The geographical diversification is calculated using the Hirschman-Herfindahl index

countries in Europe and the Middle East also received a large share of the region’s exports in 2014, with the UK capturing 8.5%, Italy 6.2%, Morocco 5.7%, Romania 4.8%, Spain 4.6%, France 3.3% and the Netherlands 2.8%. Other countries in the top 10 export destinations in 2014 were the US which had 7.8% of export shares, and Canada with 3.1%. Many countries in the top 10 changed between 2006 and 2014. Romania was a top 10 export destination

in 2006 but was replaced by Germany in 2014. Greece, Malta and Kazakhstan were top 10 export destinations in 2006 but were replaced by Morocco, Spain and Canada in 2014.

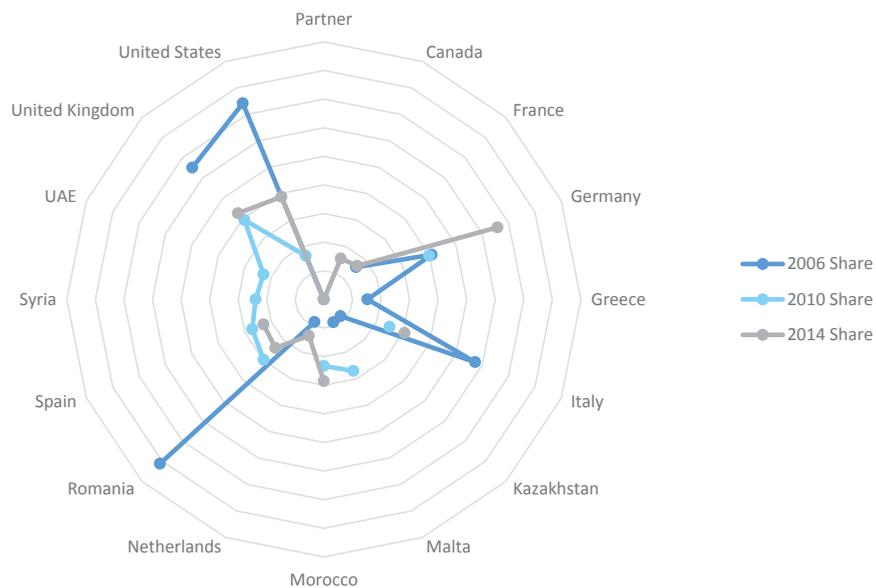
The pattern of domestic regional trade partners of TR81 remained fairly stable from 2006 to 2014. The ranking of the top 10 regional trade partners shifted and the TR62 and TR72 regions replaced TR21 and TR71, which were in the top 10 partners in 2006.

**Figure 42: Decomposition of Export Growth Into Extensive and Intensive Margins**



Source: Entrepreneur Information System, authors’ calculations

**Figure 43: Share of TR81 Partners in International Exports**



Source: Entrepreneur Information System

TR10 (Istanbul) is the largest trade partner of the region attracting 20% of the interregional sales in 2014. The result is not surprising given that Istanbul is the largest economy in Turkey. TR42, a close neighbor, was the next largest interregional trade partner of the region, receiving 19.6% of the region’s exports in 2014.

The region was not as successful in product diversification. The mix of product export became more concentrated between 2006 and 2014.<sup>14</sup> The top exporting sector changed between 2006 and 2014, from the iron and steel sector in 2006 to the “Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof” sector in 2014, which had an export share of 34.4% in 2014. The iron and steel sector also had just as large an export share as the top sector in 2014 with just an export share of 34.3%. These two sectors dominated the export shares. The next three top exporting sectors had only 20% of export share in 2014. The rapid rise of the automotive supply industry as the top-exporting sector in 2014 can be explained by the region’s historical advantage in the iron and steel industry. The top sector in terms of its share in total interregional sales was basic metals in 2006, 2010 and 2014, generating 48-59% of TR81’s total interregional sales. This industry was followed by the wholesale sector.

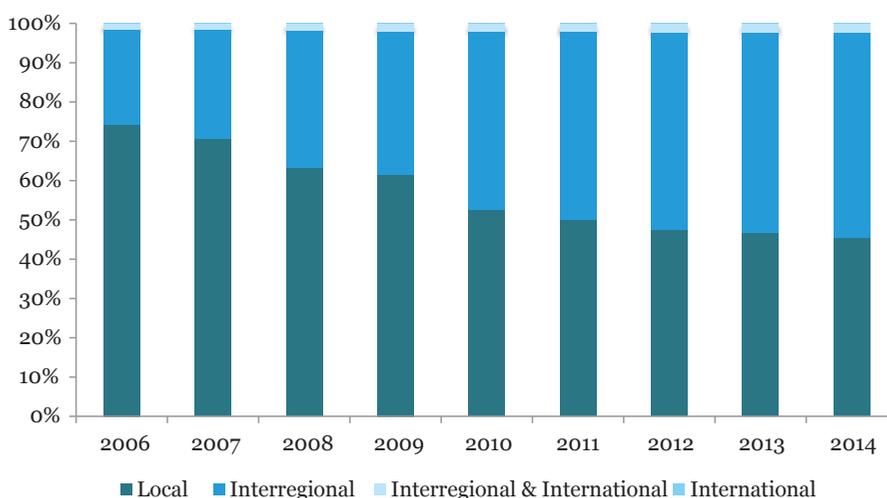
**4.5.2 Export Performance of the Companies**

There are substantial costs to trading across regional and national borders. Companies may not know the export market and incur costs while

setting up trade connections and finding customers and suppliers. Trade costs are usually higher for international markets than regional markets, where the relative lack of market information and language barriers are difficult to overcome. Thus, more companies in the region sell locally and regionally than internationally (Figure 44). While 75% of the companies traded only within the region itself back in 2006, this ratio had decreased to 45% by the end of the sample period. The companies which made the largest improvements were those that extended their trade relations to interregional destinations. More than half the companies located in region dealt with either interregional or international trade or both.

There are large costs and risks associated with exporting so companies are likely to stop exporting over time. The companies in the region had below-average survival rates in the export markets compared with all companies in Turkey; the average length of an export spell for Turkey is 2.65 years, whereas it was 2.09 for this region. 42.8% of the companies exporting to international markets are likely to disappear after the first year of exporting and 26.2% of the exporters are estimated to have survived until the end of the analysis period, which is below the average survival rate of 33% for all of the regions.<sup>15</sup> Companies in the region that were more likely to remain exporting were those exporting resource-intensive products and those exporting to the MENA region. Exporters of resource-intensive products show better survival performance than

**Figure 44: Proportion of Exports by Destination**



Source: Entrepreneur Information System, TurkStat

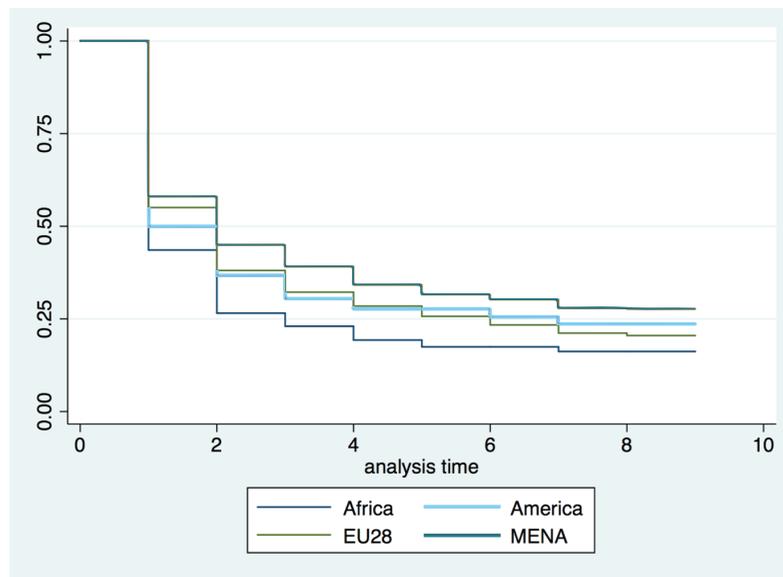
<sup>14</sup> Product diversification is calculated using the Hirschman-Herfindahl Index.

<sup>15</sup> The analysis considers the companies that are exporting at the start of the time period and examines how many of them remain exporting at the end of the time period. The percentage of companies that remain exporting is the survival rate.

exporters of low-skill, medium-skill and high-skill technology-intensive products. The mean length for a spell was lowest in the category of high-skill technology-intensive products.<sup>16</sup> There was a significant difference between the export survival rate to the Africa region and the MENA region; the length of exporting to Africa was significantly lower than to other regions. By the end of the sample period, while 27.6% of the exporting companies remained exporting to MENA, and less to EU28 (20.5%) and America (23.6%), only 16.2% of the exporting companies remained exporting to Africa (Figure 45).

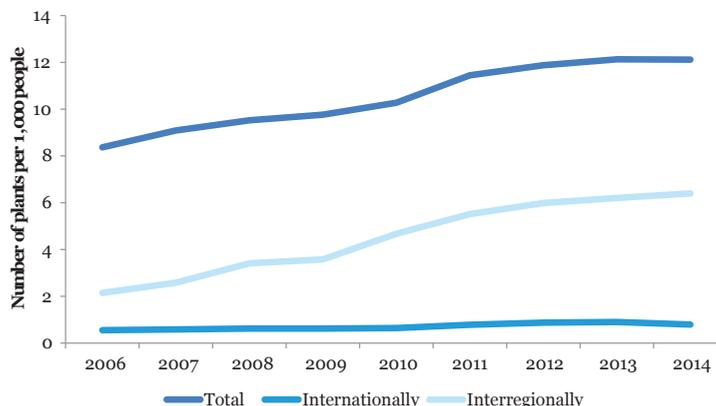
There was a steady increase in trade activities of companies in the region, with the increase driven mainly by those that export to other regions. Among 26 regions, TR81 ranked 11<sup>th</sup>, 18<sup>th</sup> and 11<sup>th</sup>, respectively, in terms of plant, exporter and interregional exporter densities, which is defined as the number of plants per 1000 people. There was a significant increase in plant density; 8.4 to 12.1 between 2006 and 2014. The tradable sectors constituted a large proportion (64.3%) of these plants: 7.4% of the plants were exporters in tradable sectors whereas this was 5% in non-tradable sectors.<sup>17</sup> The share of exporters in total plants was around 6.5% in 2014,

**Figure 45: Survival Rates For Companies' Exports by Partner Region**



Source: Entrepreneur Information System.  
 Note: Estimated using the Kaplan-Meier analysis.

**Figure 46: Plant Density by Exporting Status**



Source: Entrepreneur Information System, TurkStat

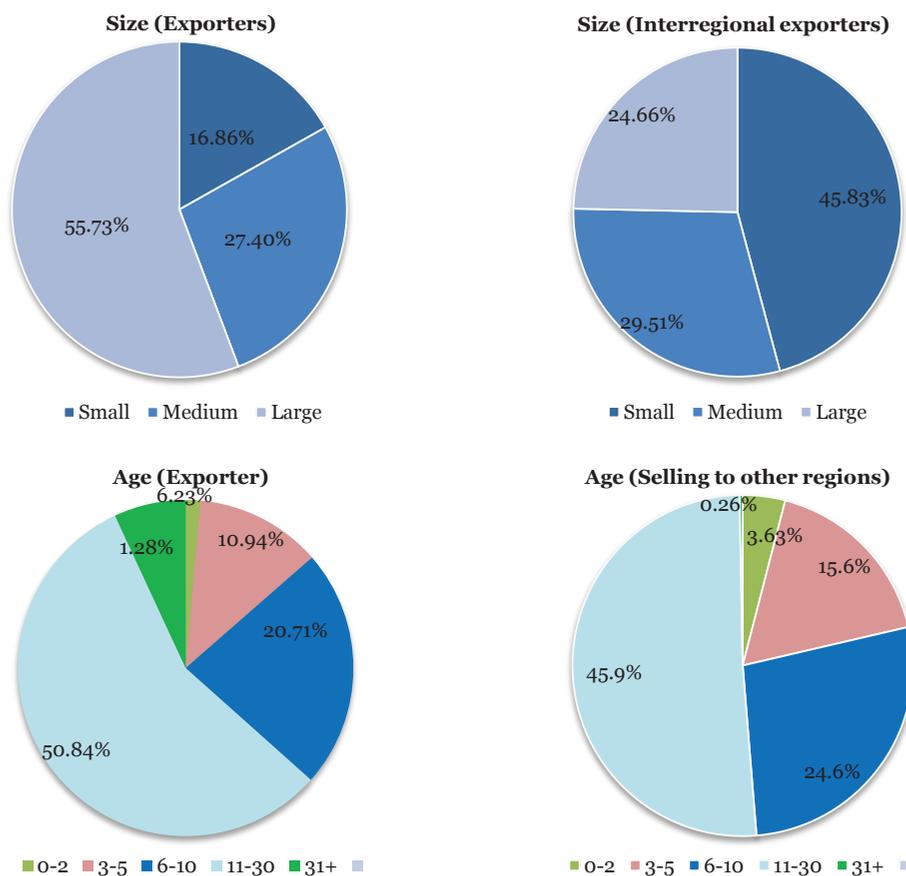
16 The products are classified into six categories using UNCTAD skill and technology product groups according to Basu, S. R., & Das, M. (2011).  
 17 Tradeable sectors are classified according to the broad NACE classification: A (agriculture, forestry and fishery); B (mining and quarrying); C (manufacturing); D (electricity, gas, steam and air conditioning supply); E (water supply, sewerage, waste management and remediation activities); G (Wholesale and retail trade, and repair of motor vehicles and motorcycles); H (Transporting and storage); I (Accommodation and food service activities); and J (Information and communication).

whereas it reached 7.4% in 2013. On the other hand, interregional trade expanded such that the share of plants selling to other regions increased from 25.6% in 2006 to 52.8% in 2014. Such a finding implies that interregional trade links intensified over the sample period (Figure 46).

Company size and age is a good predictor of whether a company will export or not: older and larger companies are more likely to have the resources and experience to export internationally and regionally. This relationship between export status and age is evident for international and regional exporters in the region, where older companies were more likely to export, but less evident for company size (Figure 47). The share

of exporters and sellers to other regions increased with the age of the companies; companies older than 6 years old export more, internationally and regionally. As the companies grow older, they may have established close international or interregional links over time. Alternatively, the plants that could established export and interregional trade links may have subsequently survived and grown older over time. While large companies are more likely to export internationally, size is less important for regional exports. 55.7% of the exporters were large companies (employing more than 100 people) and only 16.9% were small (employing 3-19 people). Company size was less important for regional exports, where 45.8% were small companies.

Figure 47: Share of Exporters by Age and Size

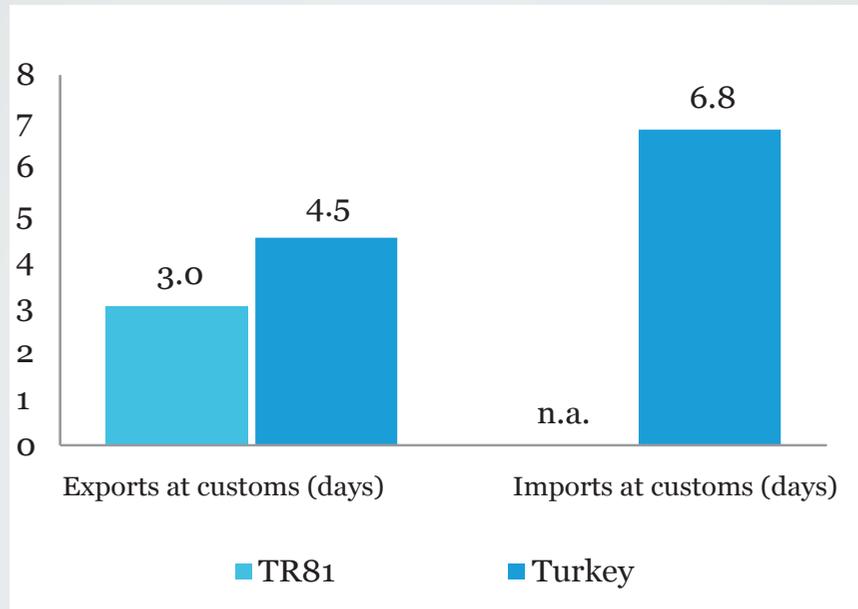


Source: Entrepreneur Information System

## Box 2: Clearing customs for exports and imports

Participation in international trade allows companies to expand, raise standards of efficiency, import materials at lower cost, and acquire updated and better technologies. However, companies are often required to obtain export and import licenses, and trading also requires that companies deal with customs and trade regulations. Efficient customs procedures are key for businesses to directly export and import goods. Delays in clearing customs for exports and imports create additional costs to the company, can interrupt production, interfere with sales, and may result in damaged supplies or merchandise.

**Figure 48: Number of Days to Clear Exports and Import Through Customs**



Source: Turkey Regional Enterprise Survey, 2016

For instance, workers that are responsible for goods are often forced to be inactive while they wait for goods to be cleared; or depending on the characteristics of the goods being transported, special arrangements might be needed to ensure that the quality of goods does not deteriorate while waiting.

to investigate the efficiency of customs operations, the R-ES asks managers and owners of private companies in Turkey about their experience in terms of the length of time that is required to clear customs both for imports and exports. The figure on the right displays their responses. Goods that are intended for export are cleared through customs in 3 days on average in TR81, compared to 4.5 days in Turkey. Imports take little longer to go through similar process in Turkey as they are cleared on average in 6.8 days. Similar data for imports are not available for TR81 as the sample size of TR81 companies that engage in imports is too small.

## 5. Annexes

### Annex 1: Strategic Priorities

Sections	Priorities
Sustainable Social Development	<ol style="list-style-type: none"> <li>1. Increasing space and life quality of settlements</li> <li>2. Ensuring social development</li> <li>3. Ensuring development in rural areas</li> <li>4. Constituting a healthy and balanced environment</li> </ol>
Sectoral Diversity Supported by Innovativeness and Entrepreneurship	<ol style="list-style-type: none"> <li>1. Ensuring sectoral diversity</li> <li>2. Increasing competitive power of existent industrial activities</li> <li>3. Strengthening transportation infrastructure and logistics opportunities</li> <li>4. Development of tourism by diversification</li> </ol>

Source: Western Black Sea Development Agency, BAKKA (2013)

## Annex 2: Investment Incentives

The New Incentive System legislated in 2012 is comprised of four categories: General Investment Incentive Scheme, Regional Investment Incentive Scheme, Large Scale Investment Incentive Scheme and Strategic Investment Incentive Scheme.

Provinces are grouped in six regions according to the results of Socio-Economic Development Index research performed by the Ministry of Development. The level of support provided under each incentive scheme varies by province based on the provinces' classification in one of the six incentive regions. The highest levels of support are provided to the priority provinces.

The General Investment Incentive Scheme provides value added tax exemption and custom duty exemption benefits. This scheme is available to all investment projects provided they meet the required amount of minimum fixed investment (1 million TL in regions I and II and 500 thousand TL in Regions III, IV, V and VI). Investment Support Offices (ISO) are authorized to issue investment incentive certificates for investments up to 10 million TL if the minimum requirements are met. For larger investments, the other investment schemes (comprising the benefits of general incentives) apply.

The Regional Investment Incentive Scheme provides additional incentives such as tax reduction, social security employer's premium exemption and land allocation. Terms and rates of support vary by region. Additionally, under this scheme, the sectors that receive incentives and the criteria to be eligible for receiving incentives differ across the provinces based on each province's competitive potential.

The Large Scale Investment Incentive Scheme applies to 12 investment categories for which the tax reduction rates and minimum required fixed investment amounts are set at higher levels. The categories supported under this scheme are Refined Petroleum Products; Chemical Products; Harbors and Harbor Services; Automotive OEM Investments and Automotive Supply industries Investments; Railway and Tram Locomotives and/or Railway and Tram Cars; Transit Pipeline Transportation Services; Electronics; Medical Devices, High Precision and Optical Equipment; Pharmaceuticals; Aircraft and Space Vehicles and/or Related Part; Machinery (Including Electrical Machinery and Equipment); and Mining (Including Metal Production). Terms and rates of support vary by region.

Lastly, the Strategic Investment Incentive Scheme aims to encourage high-tech and high value added investments with the potential to strengthen Turkey's international competitiveness. Strategic Investments require a minimum fixed investment of 50 million TL and target production of largely imported intermediate and final goods, of which over 50% are currently supplied through imports.

In addition to the 2012 New Incentive System, incentives are provided to companies located in Organized Industrial Zones (OIZ) and Technoparks. The Organized Industrial Zones are exempt from value-added tax for land purchases. Other major incentives include five-year real estate tax exemption beginning from the completion of facility construction and low water, gas and communication costs for companies. Within the Technoparks, revenues made from software development and R&D activities are exempt from income and corporate tax until December 31, 2023. Additionally, sales of application software are exempt from VAT; salaries of R&D and support staff are exempt from all taxes and 50% of the employer's share of the social security premium is paid by the government for five years.

Note: For further details, see New Investment Incentives Program legislated by Decree 2012/3305.

*Source: Ministry of Economy*

**Annex 3: Regional Investment Incentive Schemes in TR81**

<b>ZONGULDAK AND KARABÜK (REGION III)</b>				
Type of Support	Investment Start Date			
	Before 31.12.2016		After 01.01.2017	
	In OIZ	Outside OIZ	In OIZ	Outside OIZ
Tax Reduction				
Investment Contribution Rate (%)	30	25	25	20
Tax Reduction Rate (%)	70	60	60	50
Social Security Premium Support: Employer's Share	6 years	5 years	5 years	3 years
Interest Support				
TL Loan	3	–	3	–
Foreign/FX Loan	1	–	1	–
Land Allocation	All investments supported by the regional incentive system			
VAT exemption	All investments with Incentive Certificate			
Customs Duty Exemption	All investments with Incentive Certificate			
Required Minimum Fixed Investment*	500 thousand TL			
<b>BARTIN (REGION IV)</b>				
Type of Support	Investment Start Date			
	Before 31.12.2016		After 01.01.2017	
	In OIZ	Outside OIZ	In OIZ	Outside OIZ
Tax Reduction				
Investment Contribution Rate (%)	40	30	30	25
Tax Reduction Rate (%)	80	70	70	60
Social Security Premium Support: Employer's Share	7 years	6 years	6 years	5 years
Interest Support				
TL Loan	4	–	4	–
Foreign/FX Loan	1	–	1	–
Land Allocation	All investments supported by the regional incentive system			
VAT exemption	All investments with Incentive Certificate			
Customs Duty Exemption	All investments with Incentive Certificate			
Required Minimum Fixed Investment*	500 thousand TL			

Notes: OIZ refers to the Organized Industrial Zones

\*This amount may be higher for some sectors supported regionally. The support rates are higher in these large scale investments and strategic investments. For further details, see New Investment Incentives Program legislated by Decree 2012/3305.

Source: Ministry of Economy

**Annex 4: Priority Sectors in Regional Investment Incentive Scheme in TR81**

Sector Code	Sectors that receive incentives	Eligible Province	Minimum Investment Amount Required
1	Integrated animal husbandry investments including integrated animal husbandry investments for stocka	Zonguldak, Karabük and Bartın	500 thousand TL
2	Aquacultureb	Zonguldak, Karabük and Bartın	500 thousand TL
3	Manufacturing of food and beveragesc	Zonguldak, Karabük and Bartın	1 million TL
5	Manufacturing of wearing apparel	Zonguldak, Karabük and Bartın	Expansion and modernization investments over 1 million TL
8	Manufacturing of suitcase, hand bag, saddlery, footwear etc.	Zonguldak and Karabük	1 million TL
		Bartın	500 thousand TL
9	Manufacturing of wood and cork products, manufacturing of mats and other similar wickerworkd	Zonguldak and Karabük	2 million TL
		Bartın	1 million TL
10	Manufacturing of paper and paper products	Zonguldak, Karabük and Bartın	10 million TL
20	Manufacturing of non-metallic mineral productse	Zonguldak and Karabük	2 million TL
		Bartın	1 million TL
27	Main metal industry, metal casting industry except for iron and steel	Zonguldak and Karabük	2 million TL
		Bartın	1 million TL
28	Metalware	Zonguldak and Karabük	2 million TL
		Bartın	1 million TL
30	Manufacturing of machinery and equipment	Zonguldak and Karabük	2 million TL
		Bartın	1 million TL
32	Manufacturing of office, accounting and data processing devices	Zonguldak and Karabük	2 million TL
		Bartın	1 million TL
33	Manufacturing of electrical machinery and equipment	Zonguldak and Karabük	2 million TL
		Bartın	1 million TL
34	Manufacturing of radio, television, communication equipment and devices	Zonguldak and Karabük	2 million TL
		Bartın	1 million TL
35	Manufacturing of medical devices, precision and optical instruments	Zonguldak, Karabük and Bartın	500 thousand TL

36	Manufacturing of motorized land vehicles and subindustry thereof	Zonguldak and Karabük	Investment amount for motorized land vehicles is TRY 50 Million; investment amount for subindustry for motorized land vehicles is TRY 2 Million
		Bartın	Investment amount for motorized land vehicles is TRY 50 Million; investment amount for subindustry for motorized land vehicles is TRY 1 Million
40	Manufacturing of furniture <sup>f</sup>	Zonguldak and Karabük	2 million TL
		Bartın	1 million TL
41	Hotels	Zonguldak, Karabük and Bartın	3 stars and above
42	Student dormitories	Zonguldak, Karabük and Bartın	100 students
43	Cold storage house services	Zonguldak and Karabük	1000 square meters
		Bartın	500 square meters
44	Licensed warehousing	Zonguldak, Karabük and Bartın	1 million TL
45	Educational services <sup>g</sup>	Zonguldak, Karabük and Bartın	500 thousand TL
46	Hospital investment, nursing home	Zonguldak, Karabük and Bartın	Hospital: 500 thousand TL Nursing home: 100 persons
47	Smart, multifunctional, technical textile	Zonguldak, Karabük and Bartın	500 thousand TL
48	Waste recovery and disposal facilities	Zonguldak, Karabük and Bartın	500 thousand TL
50	Greenhousing	Zonguldak and Karabük	20 decares
		Bartın	10 decares

- a Excluding investments that do not comply the minimum capacity conditions for bovine, ovine and poultry investments.
- b Including fish larvae and eggs production.
- c Except the investments for “pasta, semolina integrated with pasta, noodle, couscous, phyllo, shredded wheat, rice, ready-made food for pets, fish flour, fish oil, fish bail, bread, raki, beer, dried nuts and fruits, pickle, cotton linter, tea, hazelnut break/roast, ready-made soups, bouillions and preparations and assortments and packaging of grains and legumes”.
- d Except furniture.
- e Except for tile, briquette, brick and construction materials made from baked clay, cement, concrete products for construction, ready mixed concrete and mortar and multi layered insulation glass.
- f Except for furniture manufactured only from plastic.
- g Pre-school education included, education of adults and other educational activities are excluded.

Source: Western Black Sea Development Agency, BAKKA (2013)

## Annex 5: Key Indicators of Company-Size Distribution

The Herfindahl-Hirschman Index (HHI) corresponds to the sum of the squared market shares of all the companies in the region-industry-year group  $ikt$  or  $Herfindahl_{ikt} = \sum_a (MarketShare_{aikt})^2$ . The measure ranges between  $1/N$  to 1, where  $N$  is the total number of companies in the market. Values closer to unity indicate that fewer, larger companies dominate the market.

The mean of employment can be a proxy for average company size. In case of lopsided distribution, the median or the 50<sup>th</sup> percentile of employment may provide a more representative measure, as it is not sensitive to extreme values.

The skewness is the third moment of the distribution and describes the asymmetry from Normal (bell-shaped) distribution. In the context of our analysis, this corresponds to a measurement of the heterogeneity in company size distribution. Industries with a (negative) positive skewness show a longer (left) right tail of distribution. For example, high skewness values for employment point to the presence of very large companies in the distribution.

## Annex 6: Measuring Productivity

Measuring company productivity has attracted large interest in the academic and policy debate, for its importance as well as challenges due to data requirements and econometric issues. Multiple alternatives are used, each of them subject to specific shortcomings, to assess the robustness of the results presented.

The simplest indicator considered is labor productivity which is measured as value added per worker or

$$Value\ Added\ per\ Worker_{i,t} = \frac{(Labor\ Costs_{it} + Operating\ Profits_{it}) / Sectoral\ Deflator_t}{Number\ of\ Employees_{it}}$$

for company  $i$  at time  $t$ . The calculation is performed pooling data at the regional level. Sectoral deflators are only available at the 2-digit sectoral classification for the manufacturing industry. For the rest of the industries (e.g. services), the economy-wide deflators are used. Calculations are done at the national level as regional deflators are not available.

Focusing on manufacturing industries and following similar steps a gross measure of labor productivity is computed:

$$Output\ per\ Worker_{i,t} = \frac{(Total\ Sales_{it} + Change\ in\ Stocks_{it}) / Sectoral\ Deflator_t}{Number\ of\ Employees_{it}}$$

Further insights on labor productivity may come from analyzing unit labor cost. This measure links productivity and cost of labor to generate output, and may be used as a proxy of the cost of productivity. For each enterprise, information on the number of employees and the total wages paid are available. by dividing the total wages with the total value added calculated as above, the final measure of productivity is derived, so that:

$$Unit\ Labour\ Cost_{i,t} = \frac{Total\ Wages_{i,t}}{Value\ Added_{i,t}}$$

by their nature, these measures do not capture accurately gains in productivity driven by higher return to capital.

A more holistic measures of productivity is Total Factor Productivity (TFP). It is computed based on the following OLS regression:

$$\log y_{it} = \beta_0 + \beta_k \log k_{it} + \beta_l \log l_{it} + \omega_{it} + u_{it}$$

where  $y_{it}$  are real output (using sectoral deflator when available) of company  $i$  at time  $t$ ,  $k_{it}$  is the value of tangible and intangible assets derived from balance sheets, and  $l_{it}$  is the number days worked or number of full time employees multiplied by salaries and wages expenditure. The terms  $\omega_{it}$  and  $u_{it}$  stand respectively for company productivity and a zero-mean error term that accounts for the measurement error of unanticipated productivity shocks that do not influence the choice of inputs. The regression is run separately on data from each region. Company-specific, time-invariant fixed effects are then added to control for time-invariant unobserved productivity at the company level.

OLS estimation is popular due to low computation requirements. It delivers reliable estimates in the presence of constant return to scale and input inflexibility. These are clearly strong assumptions.<sup>16</sup> As soon as they are relaxed, OLS estimates suffer from a simultaneity or endogeneity problem. OLS coefficients of the production function are biased as companies can choose inputs endogenously. This bias is more severe as companies can adjust inputs quickly in response to productivity shocks. Moreover, if no allowance for entry and exit is made, a selection bias emerges.

<sup>16</sup> In the presence of measurement error in any variable, using median (quantile) regression may reduce such bias.

The methodology proposed by Olley and Pakes (1996) is useful to address these concerns. It addresses the challenges with (i) endogeneity of some of the inputs, (ii) selection through exit of companies, and (iii) unobserved permanent differences across companies. The authors propose a semi-parametric approach using investment as a proxy variable for unobserved productivity shocks, addressing endogeneity concerns. Selection issues are tackled by incorporating an exit rule into the model. Formally, this translates to estimating:

$$\log y_{it} = \beta_0 + \varphi_k(k_{it}, i_{it}) + \beta_l \log l_{it} + \eta_{it} + e_{it}$$

where  $\varphi_k(k_{it}, i_{it})$  is a polynomial function of investment and capital.

Olley and Pakes's method has its own limitations. It requires (i) the existence of a monotonic relationship between a company-level decision variable (e.g. investment) and the unobserved company-level state variable "productivity", (ii) that an exit is also conditioned on the unobserved productivity. The method delivers reliable estimates only in the presence of one of these two issues.

## Annex 7: Total Factor Productivity (TFP) decomposition

Haltiwanger (1997) shows that the growth in TFP can be decomposed into five components, corresponding to the addenda in the equation below. Specifically, they are (i) the within component, measuring the changes in productivity for continuing plants, (ii) the between-plant portion, reflecting the change in output shares across continuing plants, (iii) the covariance component, and finally the (iv) entry and (v) exit components.

$$\begin{aligned} \Delta \log(TFP_t) = & \sum_{i \in C} \varphi_{i,t-k} \Delta \log(TFP_{it}) + \sum_{i \in C} \Delta \varphi_{i,t} [\log(TFP_{i,t-k}) - \log(TFP_{t-k})] \\ & + \sum_{i \in C} \Delta \varphi_{i,t} \Delta \log(TFP_{i,t}) + \sum_{i \in \Xi} \varphi_{i,t} [\log(TFP_{i,t}) - \log(TFP_t)] \\ & + \sum_{i \in X_{t-k}} \varphi_{i,t-k} [\log(TFP_{i,t-k}) - \log(TFP_{t-k})] \end{aligned}$$

where TFP is defined as the weighted sum of company-level Solow residuals.

Let  $g_y$  denote the growth rate of aggregate output,  $g_k$  the growth rate of aggregate capital,  $g_L$  the growth rate of aggregate labor and  $\alpha$  the capital share. The Solow residual is then defined as  $g_y - \alpha g_k - (1-\alpha)g_L$ . The Solow residual accurately measures TFP growth if (i) the production function is neoclassical, (ii) there is perfect competition in factor markets, and (iii) the growth rates of the inputs are measured accurately.

Let  $C$  denote the collection of plants active in both periods  $t - k$  and  $t$ ,  $\Xi$  the set of plants that entered between the two dates and which are still active at time  $t$ , and  $X_{t-k}$  the set of companies that were active at time  $t - k$ , but which exited before time  $t$ .

## Annex 8: Allocative Efficiency

Olley and Pakes (1996) show that the weighted average of productivity can be written as:

$$a = \bar{a} + \sum_{i=1}^n (s_i - \bar{s})(a_i - \bar{a})$$

where  $a$  and  $\bar{a}$  are respectively the productivity level, and the labor share of company  $i$  in a given industry. The equation shows that average productivity can be thought of as made up of two parts: (i) the unweighted average level of productivity and (ii) the covariance between market share and productivity. This implies that the weighted average of productivity could be increased either by increasing the unweighted average of productivity (e.g., by increasing the productivity of all companies in an industry) or by increasing the covariance between market share and productivity (i.e., increasing the market share for productive companies and decreasing the market share for unproductive companies). Rearranging these terms, allocative efficiency can be calculated as the ratio of the covariance term to the weighted average, or:

$$\text{Allocative Efficiency} = \frac{\sum_{i=1}^n (s_i - \bar{s})(a_i - \bar{a})}{\bar{a} + \sum_{i=1}^n (s_i - \bar{s})(a_i - \bar{a})}$$

As more competitive companies capture larger market shares, allocative efficiency increases.

## Annex 9: Sources of Labor Productivity Growth

Following the approach of McMillan and Rodrik (2011), labor productivity growth in an economy is assumed to be achieved in one of two ways: (i) within economic sectors through capital accumulation, technological change, or reduction of misallocation across plants; (ii) through a structural change in which labor can move from low-productivity sectors to high-productivity sectors. The following growth decomposition was applied:

$$\Delta Y_t = \sum_{i=n} \theta_{i,t-k} \Delta y_{i,t} + \sum_{i=n} y_{i,t} \Delta \theta_{i,t}$$

where  $Y_t$  and  $Y_{it}$  refer to economy-wide and sectoral labor productivity levels, respectively, while  $\theta_{it}$  is the share of employment in sector  $i$ . The  $\Delta$  operator denotes the change in productivity or employment shares between  $t-k$  and  $t$ . The first term in the decomposition is called the “within” component of productivity growth, and is defined as the weighted sum of productivity growth within individual sectors (with weights being the employment share of each sector at time  $t$ ). The second term reflects “structural change” and captures the productivity effect of labor reallocations across different sectors. A positive (negative) “structural change” component suggests that structural change in the economy has been productivity-enhancing (reducing). In sum, the proposed decomposition aims to disentangle the changes in regional productivity into two components: one related to change in sectoral decomposition and another linked to productivity fluctuations.

## Annex 10: Enterprise Surveys Methodology

The Enterprise Surveys (ES) provide a rich source of information about companies and the environment in which they operate. Topics include company characteristics, annual sales, costs of labor and other inputs, performance measures, access to finance, workforce composition, women's participation in the labor market, and many aspects of the business environment. Survey data is not only useful for corroborating findings based on macroeconomic data but also for exploring heterogeneity at the company level and examining how companies experience laws and regulations.

Since 2006, the ES have been conducted by the World Bank Group and its partners in 136 economies worldwide and follows a global methodology, which includes a consistent definition of the survey's sampling universe, a standard sampling methodology, and the use of a global questionnaire.

The standard universe under study in the ES is the formal non-agricultural, non-extractive private sector, defined as all companies with at least some private ownership (fully government owned companies are excluded). Sector coverage is defined consistently across all economies and includes the entire manufacturing sector and most service sectors as shown in Table A10-1. The ES interviews are conducted face to face with top managers and business owners.

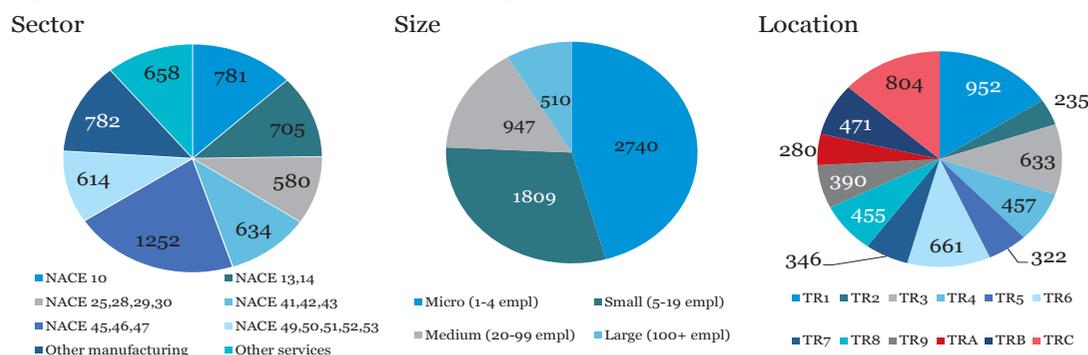
**Table A10-1: Enterprise Surveys universe of study**

INCLUDED	EXCLUDED
<b>SECTORS</b>	<b>SECTORS</b>
<ul style="list-style-type: none"> <li>Manufacturing (all subsectors)</li> <li>Construction</li> <li>Motor vehicles sales and repair</li> <li>Wholesale</li> <li>Retail</li> <li>Hotels and restaurants</li> <li>Storage, transportation, and communications</li> <li>IT</li> </ul>	<ul style="list-style-type: none"> <li>Agriculture</li> <li>Fishing</li> <li>Mining</li> <li>Public utilities</li> <li>Financial intermediation</li> <li>Public administration</li> <li>Education, health and social work</li> </ul>
<b>ADDITIONAL CRITERIA</b>	<b>ADDITIONAL CRITERIA</b>
<ul style="list-style-type: none"> <li>Formal (registered) companies</li> <li>Minimum 1% private ownership</li> </ul>	<ul style="list-style-type: none"> <li>Informal (non-registered) companies</li> <li>100% state-owned companies</li> </ul>

The sampling methodology is stratified random sampling. The sample for each economy is stratified by industry, company size, and geographic location. The level of detail of the stratification by industry generally depends on the size of the economy. Stratification by size usually follows three levels: 5-19 employees (small), 20-99 employees (medium), and 100+ employees (large). The Turkey R-ES also covered micro companies, with 1 to 4 employees. Regional stratification includes the main economic locations in each economy. Through this methodology, estimates for different stratification levels can be calculated separately while, at the same time, inferences can be made for the universe of reference as a whole.<sup>17</sup> Finally, the survey uses a global, standardized questionnaire.

Managers and owners of 6,006 companies have been interviewed as part of the Turkey R-ES. Figure A10-1 brevity presents characteristics of companies surveyed. Industry is stratified into 8 groups using the NACE 2.0 classification as described on the leftmost panel of Figure A10-1.<sup>18</sup> The rightmost panel displays the current locations of companies interviewed at the NUTS-1 level. Note however that the location is stratified with much higher precision, namely at NUTS-3 level, which is not displayed for

**Figure A10-1: Characteristics of Companies Surveyed**



<sup>17</sup> For more details on the sampling strategy, please review the Sampling Note available at [www.enterprisesurveys.org](http://www.enterprisesurveys.org).

<sup>18</sup> The NACE codes are as follows: 10 represents manufacture of food products, 13 and 14 represent manufacture of textiles and wearing apparel; codes 25, 28, 29, and 30 represent manufacture of fabricated metal products, machinery and equipment, motor vehicles; codes 41, 42, and 43 represent construction; codes 45, 46, 47 represent wholesale and retail trade; codes 49, 50, 51, 52 and 53 represent transportation sector including its support activities. Finally, the category "Other manufacturing" includes codes 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27, 31, 32, 38; and the category "Other services" includes codes 33, 42, 43, 55, 56, 58, 61, 62, 79, 95.

## Annex 11: Enterprise Surveys Indicators

The following tables contain the values of all indicators used in the regional profile. The indicators are indicated with “n.a.” even if they have less than 5 observations for that category due to the following two reasons: (i) to protect confidentiality, as when a cell is cut too thin, it becomes possible to identify respondents, and (ii) to avoid computing imprecise indicators with very few observations

	TR81	Micro companies	Small companies	Medium companies	Large companies	Turkey
Company Characteristics						
Companies' age (years)	10.8	10.6	10.0	13.4	13.1	12.0
Proportion of Company owned domestically (%)	95.9	94.3	99.9	99.9	94.3	99.6
Proportion of Company owned by the largest owner(s) (%)	94.4	99.5	95.9	56.9	83.0	95.7
Companies with internationally-recognized quality certification (%)	3.1	0.5	11.7	1.7	54.7	4.8
Performance						
Real annual sales growth (%)	27.8	26.7	22.6	44.6	7.6	13.3
Annual employment growth (%)	0.0	0.0	0.0	0.3	0.0	1.2
Annual labor productivity growth (%)	27.7	26.7	22.5	44.3	7.6	12.3
Capacity utilization (%)	88.7	81.8	96.4	83.4	81.8	73.1
Companies buying fixed assets (%)	13.2	3.1	11.6	85.8	26.3	14.3
Trade						
Days to clear direct exports through customs	3.0	n.a.	n.a.	n.a.	n.a.	4.5
Days to clear imports from customs	n.a.	n.a.	n.a.	n.a.	n.a.	6.8
Proportion of domestic sales (% of annual sales)	98.1	99.5	94.3	97.7	66.8	97.6
Proportion of inputs of foreign origin (% of total inputs)	n.a.	n.a.	n.a.	n.a.	n.a.	46.9
Companies exporting directly or indirectly (at least 1% of sales, %)	2.2	0.6	5.7	2.9	49.4	5.3
Companies using material inputs of foreign origin (%)	1.5	0.6	2.1	0.0	9.3	5.4
Physical and Communications Infrastructure						
Delay in obtaining an electrical connection (days)	3.0	1.0	8.3	n.a.	n.a.	2.6
Delay in obtaining a water connections (days)	5.0	4.7	9.1	n.a.	n.a.	2.9
Electrical outages in a typical month (No.)	1.2	0.3	3.7	2.6	0.8	0.9
Duration of a typical electrical outage (hours)	2.9	6.0	1.5	n.a.	n.a.	2.7
Losses due to electrical outages (% of annual sales)	4.0	4.4	4.0	0.1	0.1	1.3
Total time of power outages per month	1.8	1.0	4.4	3.0	1.4	2.7
Water insufficiencies in a typical month (No.)	0.0	0.0	0.0	0.0	0.0	0.1
Companies owning or sharing a generator (%)	12.5	3.5	4.4	90.4	25.3	7.0
Proportion of electricity from a generator (%)	6.1	n.a.	4.0	7.6	2.3	28.1
Companies applying for natural gas connection (%)	16.4	5.8	21.6	83.3	0.0	3.4

Companies owning or sharing a solar array or other alternative energy source (%)	0.2	0.0	0.0	1.6	0.0	0.8
Company with internet connection (%)	52.2	40.2	72.0	96.4	100.0	59.3
Companies that experience internet outages (%)	24.2	12.7	3.9	87.4	8.8	16.1
Internet outages in a typical month (No.)	1.9	n.a.	n.a.	n.a.	n.a.	4.7
Duration of a typical internet outage (hours)	1.0	n.a.	n.a.	n.a.	n.a.	2.6
Companies with own website (%)	17.8	9.3	50.9	12.6	78.9	25.2
Companies using e-mail to communicate with clients/suppliers (%)	52.2	38.7	76.9	99.3	100.0	39.5
Companies using online sales platform (%)	11.1	0.2	12.6	84.7	26.5	5.6
Access to Finance						
Companies using banks to finance investments (%)	68.0	n.a.	n.a.	n.a.	n.a.	31.3
Companies using banks to finance working capital (%)	50.2	50.7	44.1	81.7	76.5	23.1
Companies with a bank Loan/line of credit (%)	37.1	30.1	37.5	89.0	8.3	26.4
Companies with a checking or savings account (%)	27.6	18.5	26.4	92.7	45.3	61.6
Proportion of investments financed by internal funds (%)	46.0	n.a.	n.a.	n.a.	n.a.	73.0
Proportion of investments financed by banks (%)	12.3	n.a.	n.a.	n.a.	n.a.	20.2
Proportion of investments financed by supplier credit (%)	13.4	n.a.	n.a.	n.a.	n.a.	1.5
Proportion of investments financed by equity or stock sales (%)	5.9	n.a.	n.a.	n.a.	n.a.	3.0
Proportion of investments financed by other financing sources (%)	22.4	n.a.	n.a.	n.a.	n.a.	2.4
Proportion of working capital financed by internal funds (%)	45.5	44.4	54.5	18.8	10.0	86.0
Proportion of working capital financed by banks (%)	43.1	46.8	23.3	53.1	72.2	8.5
Proportion of working capital financed by supplier credit (%)	3.8	1.6	13.3	21.6	0.0	4.0
Proportion of working capital financed by other financing sources (%)	7.6	7.2	8.8	6.5	17.7	1.5
Proportion of working capital financed by external sources (%)	54.5	55.6	45.5	81.2	90.0	14.0
Companies that are partially credit constrained (%)	16.5	15.8	19.9	5.1	30.2	10.1
Companies that are fully credit constrained (%)	30.5	34.5	14.9	1.2	7.3	17.8
Companies that are not credit constrained (%)	53.0	49.6	65.2	93.7	62.4	72.1
Business-Government Relations						
Senior management time spent in dealing with requirements of government regulation (%)	10.8	11.7	12.0	1.2	24.8	13.5
Days to obtain an import license	n.a.	n.a.	n.a.	n.a.	n.a.	8.4
Days to obtain operating license	1.1	n.a.	n.a.	n.a.	n.a.	9.9

Days to obtain construction-related permit	103.8	n.a.	n.a.	n.a.	n.a.	33.4
Companies expected to give gifts in meetings with tax officials (%)	3.2	n.a.	36.3	0.0	0.0	15.4
Companies expected to give gifts to secure a government contract (%)	99.4	n.a.	n.a.	n.a.	n.a.	35.6
Companies expected to give gifts to get a construction permit (%)	5.7	n.a.	9.3	n.a.	n.a.	2.4
Expanded bribery depth (% of public transactions where a gift or informal payment was requested)	8.4	0.0	2.6	29.1	0.0	1.6
Expanded bribery incidence (% of companies experiencing at least one bribe payment request)	23.4	0.0	2.9	87.3	0.0	2.4
<b>Crime and Informality</b>						
Companies paying for security (%)	26.7	8.0	61.3	91.6	79.6	13.2
Average costs of security (% of annual sales)	9.3	n.a.	2.3	n.a.	7.1	3.1
Companies experiencing losses due to theft and vandalism (%)	1.7	2.4	0.0	0.2	0.0	5.4
Average losses due to theft and vandalism (% of annual sales)	n.a.	n.a.	n.a.	n.a.	n.a.	5.5
Companies formally registered when started operations (%)	90.1	86.1	99.7	100.0	98.1	97.2
Companies competing against unregistered or informal companies (%)	56.3	47.1	72.6	92.0	45.6	34.4
Companies most affected by copyright, trademark, or patent infringement practices (%)	25.4	41.5	1.0	3.1	n.a.	3.5
Companies most affected by fraudulent product certifications (%)	13.3	11.7	24.2	3.8	n.a.	9.6
Companies most affected by tax avoidance (%)	11.4	9.8	20.3	0.4	n.a.	65.3
Companies most affected by hiring of informal labor (%)	4.5	0.0	17.0	2.8	n.a.	11.0
Companies most affected by other practices of informal competitors (%)	3.9	0.0	16.6	0.0	n.a.	4.7
Companies not affected by informal competition (%)	41.5	37.0	20.8	90.0	n.a.	5.9
<b>Labor Market</b>						
Years of the top manager's experience working in the Company's sector	16.6	16.4	17.9	15.7	17.8	18.6
Number of permanent full time workers	6.1	1.6	7.0	22.8	202.3	7.3
Companies with temporary workers (%)	0.0	0.0	0.0	0.0	0.0	5.6
Number of temporary workers	0.0	0.0	0.0	0.0	0.0	0.1
Companies with majority female ownership (%)	28.1	29.5	32.6	8.4	46.1	11.9
Companies with a female top manager (%)	14.3	13.5	25.3	1.1	3.2	9.6
Females among permanent workers (%)	21.1	22.2	19.5	15.1	30.5	35.9
Females among temporary workers (%)	n.a.	n.a.	n.a.	n.a.	n.a.	13.6
Companies with at least one vacancy in past 2 years (%)	22.0	7.8	37.2	91.0	72.5	21.3
Companies that used PES successfully (%)	3.1	0.0	0.8	2.8	62.1	10.9

Companies that used PES unsuccessfully (%)	48.1	0.0	33.9	91.3	0.0	9.2
Companies that did not use PES (%)	48.8	100.0	65.3	5.8	37.9	80.0
Companies that tried to hire a senior level professional in past 2 years (%)	1.9	0.0	5.1	0.0	11.0	5.5
Companies with no or few applicants for the vacancy (%)	n.a.	n.a.	n.a.	n.a.	n.a.	30.4
Companies whose applicants for the vacancy lacked required skills (%)	n.a.	n.a.	n.a.	n.a.	n.a.	52.2
Companies whose applicants for the vacancy demanded higher wages than possible (%)	n.a.	n.a.	n.a.	n.a.	n.a.	59.5
Companies whose applicants for the vacancy demanded better working conditions than possible (%)	n.a.	n.a.	n.a.	n.a.	n.a.	15.4
Companies that tried to hire a non-senior level professional in past 2 years (%)	7.5	0.0	20.7	0.0	40.2	17.5
Companies with no or few applicants for the vacancy (%)	16.0	n.a.	n.a.	n.a.	n.a.	37.0
Companies whose applicants for the vacancy lacked required skills (%)	87.1	n.a.	n.a.	n.a.	n.a.	39.1
Companies whose applicants for the vacancy demanded higher wages than possible (%)	3.1	n.a.	n.a.	n.a.	n.a.	48.7
Companies whose applicants for the vacancy demanded better working conditions than possible (%)	3.1	n.a.	n.a.	n.a.	n.a.	18.3
<b>Companies' Perception of the Business Environment</b>						
Access to finance	1.9	0.0	10.1	0.0	0.0	19.5
Access to land	0.0	0.0	0.0	0.0	0.0	0.7
Licensing and permits	12.0	0.0	13.4	83.1	0.0	2.3
Corruption	0.0	0.0	0.0	0.0	0.0	1.5
Courts	0.1	0.0	0.0	0.3	13.8	0.3
Crime, theft and disorder	9.1	12.7	0.0	2.8	4.1	1.6
Customs & trade regulations	0.0	0.0	0.0	0.0	3.4	1.2
Electricity	4.2	4.8	4.3	0.0	2.5	1.7
Inadequately educated workers	0.2	0.2	0.0	0.0	0.0	6.7
Labor regulations	0.0	0.0	0.0	0.0	6.1	2.5
Political instability	0.0	0.0	0.0	0.0	0.0	11.7
Informal competitors	7.9	3.4	26.6	2.8	25.1	13.4
Tax administration	2.4	2.9	2.1	0.3	3.8	2.7
Tax rates	60.7	74.0	43.5	10.3	41.1	32.5
Transport	1.4	1.9	0.0	0.4	0.0	1.6

\* These indicators are computed only for the manufacturing sector

Note that indicators that are described with indented text refer to the subset of companies that are less indented and are immediately above

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