TOOLKIT FOR DESIGNING REGIONAL COMPETITIVENESS AGENDA

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ABBREVIATIONS

BRSA   : Banking Regulation and Supervision Agency
EU   : European Union
FIAS   : Facility for Investment Climate Advisory Services
GAP   : Southeast Anatolia Project
GDP   : Gross Domestic Product
GEP   : Global Entrepreneurship Program
HLS   : Household Labour Survey
ICA   : Investment Climate Assessment
ICS   : Investment Climate Survey
ISKUR   : Turkish Employment Organization
IVCI   : Istanbul Venture Capital Initiative
KOSGEB   : Administration for Promotion of Small and Medium-sized Enterprises
MoNE   : Ministry of National Education
NACE   : Nomenclature Generale des Activites Economiques dans l`Union Europeenne
NUTS   : Nomenclature d'Unités Territoriales Statistiques
OECD   : Organisation for Economic Co-operation and Development
OSYM   : Assessment, Selection and Placement Centre
PPP   : Purchasing Power Parity
SGK   : Social Security Institution
SITC   : Standard International Trade Classification
SYDV   : Social Assistance and Solidarity Foundation
TIM   : Turkish Exporters Assembly
TOBB   : Union of Chambers and Commodity Exchanges of Turkey
TRNC   : Turkish Republic of Northern Cyprus
TTGV   : Technology Development Foundation of Turkey
TUBITAK   : The Scientific and Technological Research Council of Turkey
TURKSTAT   : Turkish Statistical Institute
UN   : United Nations
UNDP   : United Nations Development Programme
USA   : United States of America
YOK   : Council of Higher Education

FOREWORD

Turkey's development performance has been impressive since the early 2000s achieving radical transformations in many areas. Regional policy and development have both been a subject and an object of such process. The governance mechanism for regional policy has also strengthened in this period while regional level analysis, strategy development and project action have soared particularly following the establishment of regional development agencies.

Competitiveness is a key success factor for development that requires attention both at national level and regional and local levels. The first step towards the goal of strengthened competitiveness is to build a sound knowledge base. Entities involved in regional level analysis in Turkey including particularly regional development agencies need sound, objective analytical tools. A variety of such tools will help identify, and build a deeper understanding of, the present states and potentials of regions through various perspectives. A successful and effective development story can only be built on such a base.

The "Toolkit for Designing Regional Competitiveness Agenda" introduces various tools that can be employed to assess the competitiveness of regions and identify areas amenable to further enhancement of competitiveness; and discusses key aspects of such tools in respect of instrumentality in developing the "agendas for competitiveness". The toolkit therefore intends to contribute to the individualisation of regional agendas relying on factual data and information to the extent possible.

The "Toolkit for Designing Regional Competitiveness Agenda" is meant to be a guide serving as a framework for analyses of competitiveness and produce comparative outputs. I do hope that the toolkit will be useful in improving the quality and quantity of relevant studies, and inform the formulation of policies to enhance regional competitiveness.

Lütfi Elvan
Minister of Development

PREFACE

The work "Competitiveness Agenda for the GAP Region" published in 2007 by the Southeast Anatolia Project Regional Development Administration with technical assistance from the United Nations Development Programme (UNDP) aimed to activate the potentials of the Region in order to improve its national and international competitiveness; re-interpret its development parameters through a competition-based perspective; identify and prioritize the factors impacting its competitiveness; pursue a differentiation strategy to offer a Region-specific "value proposition" to ultimately integrate with the global markets. The work identified strategies and sectors that would boost the Region's competitiveness and make it a brand to achieve the vision of "Cradle of Sustainable Civilizations" for GAP Region. The projects on renewable energy, organic agriculture, qualified textiles and tourism as proposed in the Competitiveness Agenda were implemented in the GAP Action Plans (2008-2012 and 2014-2018).

In the meantime, development agencies were established in our country which immediately set to work on regional level analysis, strategy development and project action including particularly the regional plans. The experience of Competitiveness Agenda work at "geographic" scale in the GAP Region sparked the idea of creating a toolkit that would inform and guide the scaling of Level II Regions; replicability, scalability and institutionalization of the methodology and approach of the Competitiveness Agenda; implementation of competitiveness agendas by development agencies that could be integrated into regional development plans.

The toolkit seeks, at a higher level, to answer the following questions: "Are there different models of competitiveness for different regions? If so, how can we design region-specific competitiveness agendas based on such models? How can we reflect competitiveness agendas in the regional plans? How should we conceive inter-regional cooperation to ensure that the competitiveness of a region contributes to those of others?"

The study combines the analytical tools that can be used to enrich the content of regional competitiveness agenda in a toolkit of nine areas. The said areas are interactive and integrative. These areas are addressed at separate planes such as investment climate, value chain, export performance that are of direct relevance to regional competitiveness. The toolkit developed for each area addresses how to conduct analyses of various purposes such as measurement, performance analysis, benchmarking, causation et cetera, and how they can be interpreted for regional competitiveness agenda.

The nine tools provide important hints on competitiveness, and is complementary to one another. Not all the tools offered in this toolkit will necessarily be employed at the same time; thus some prioritisation among the tools may be required. Such prioritisation should better be decided by local agencies, private sector representatives and civil society who have vast knowledge and experience of the local conditions.

I would like to thank everyone who devoted time and labour to this toolkit which has been created by the joint work of the Southeast Anatolia Project Regional Development Administration, United Nations Development Programme (UNDP) and Economic Policy Research Foundation of Turkey (TEPAV), and can serve as the basis of regional development efforts in our country.

Sadrettin Karahocagil
President, GAP Regional Development Administration

EXECUTIVE SUMMARY

Regional policies are becoming more important in contemporary development literature. In the 1950, 30% of the world population lived in cities whereas 54% lived in cities as of 2014. It is projected that 66% of the global population will live in the cities by 2050.[1] The growth of cities, development of transport means and other factors directed human mobility to developed cities in economic and social aspects. Accordingly, the development paradigm shifted such that in addition to inter-country competition, cities and regions started to compete as well. In this context, the need is more pronounced for the development of regional competitiveness policies. Those policies have become important elements not only for competition among regions and cities, but also of the nation-wide internal dynamics and total development. At the present stage, regions and cities take up the front lines on the fight for internal growth.[2]

While regional policies and localisation have since the early 2000s become more important in Turkey, the tools used in regional competitiveness agenda have yet to be standardized. Following the crisis of 2001 in Turkey, economic stability took hold on account of the structural reforms in monetary and fiscal policies, and a higher pace of growth was experienced due to increased competitiveness. This increased regional competition and made more room for the use of structural tools that would foster regional competitiveness. One such tool is the state aid or the so-called incentive system. The said incentives were provided on the basis of Level 2 regions in 2009, and on the basis of provinces (Level 3 districts), to various sectors at varying rates. This aimed to reduce the development gaps between regions and ensure that regions/provinces of a certain development level would compete with regions/provinces of similar level. Further in 2006, a new era started in Turkey upon the establishment of development agencies in Izmir and Cukurova as pilot regions. In 2009, development agencies were established in all 26 Level 2 regions in order to accelerate regional development, ensure sustainability, and reduce disperaties within and between regions. Development agencies in Turkey are designed to be in the same organizational structure but have a flexible range of engagements for their peculiar purposes. This allows development agencies to concentrate on various fields based on the regional needs and potential, but makes it difficult to benchmark between regions and develop a regional development policy at national scale. Competitiveness agenda studies undertaken either by development agencies or other public agencies engage in various fields and are conducted through various methodologies making it difficult to compare the results by regions. This makes difficult to measure the national scale effectiveness of the regional plans and programs prepared by development agencies.

This study combines the analytical tools that can be used to enrich the content of regional competitiveness agenda in a toolkit of nine areas. The said areas are interactive and integrative. These areas are addressed at nine separate planes such as investment climate, value chain, export performance that are of direct relevance to regional competitiveness. The said tools include the following nine areas: (i) investment climate, (ii) export performance and production structure, (iii) value chains, (iv) skill set, (v) connectivity, (vi) external economic environment, (vii) regional innovation ecosystem, (viii) regional entrepreneurial ecosystem and (ix) quality of life. The toolkit developed for each area addresses how to conduct analyses of various purposes such as measurement, performance analysis, benchmarking, causation etc, and how they can be interpreted for regional competitiveness agenda.

Areas included in the regional competitiveness agenda toolkit may vary by country. The aforesaid tools are constructed by reviewing the literature in various disciplines to address the regional competitiveness agenda in Turkey. In differing categories of countries however the toolkit may vary depending on the differing circumstances and potentials. Further, new tools may be needed in time. Therefore, it may be useful to undertake studies led by relevant agencies and entities in charge of regional and local policies in order to develop regional competitiveness agenda toolkits for various countries.

Which analytical tools should have priority in the region, province or district of study must be decided by local public agencies, private sector and civil society. When undertaking research in a region, province or district, it may not be needed to simultaneously employ all the tools in this toolkit, for each location has its specific opportunities, potentials

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[1] United Nations, World Urbanization Report 2014.
[2] OECD, Regional Outlook 2014.

and disadvantages. Moreover, the use of all tools at the same time are often not practicable. This requires some prioritisation among the tools to be picked up from the toolkit for a specific study. Such prioritisation should better be decided by local agencies, private sector representatives and civil society who have vast knowledge and experience of the local conditions.

The regional competitiveness agenda toolkit provides a good opportunity to countries to implement regional policies at national level and promote local development. For countries such as Turkey where regional development gaps exists, the national coordination of regional policies is of utmost importance. Further in such countries, since the regional gaps are intensive, such coordination needs be guided and informed by the local actors instead of the central dictation. However, conflicting results from the studies undertaken by various local agencies employing various methodologies result in that the said guidance cannot be effectively provided. On the other hand, most developing countries often have no infrastructure at local level to develop the regional competitiveness agenda. Such infrastructure is completed to some extent by the establishment of development agencies. However, development agencies need guidance because they are new. This toolkit is expected to guide the work on regional competitiveness agenda and serve as a guide to conduct comparable studies at the local level. Thereby, we hope it will help national coordination of regional policies and local development.

Tools included in the toolkit are addressed in a standard manner with interactions noted. A common outline is used to present the tools included in the toolkit. Each chapter has an introductory section that outlines the general purpose of the tool, subsections and finally an assessment. This allows comparison between tools. In this context, persons or organizations working on regional competitiveness agenda may select the tools based on the areas of use, expected outputs and other matters.

Each chapter in this toolkit starts with an introductory section which presents a summary of the tool. This section provides information on which purposes the tool can be used, scope, by whom and how, and what steps it involves. This section is devised to inform people who are not knowledgeable on the tool in question. The table in the introductory section of each chapter presents the purpose of use, user profile, method(s), potential outputs, relevant entities and stakeholders, and critical issues. Thereby, users are allowed to identify the tools fitting their purpose without having to examine the entire toolkit.

Following each introductory section, detailed information is provided in subsequent sections on how to use the tool. Such sections occasionally include examples in the boxes to give an idea of how to use the indicators and analyses included in the tool. Further, the data, information and indicators used in each tool are presented in tables along with sources. The basic purpose here is to refer to accurate sources in research and analyses.

Good practices presented in the boxes aim to help employ the tools correctly. For some tools, good practices are presented to achieve multiple purposes. First and foremost, the user must use the correct data and indicators for the analyses and accordingly make accurate interpretations and assessments. Further, as indicated earlier, it is aimed that users can easily follow the methods included in the toolkit.

In the section "background studies and assessment", comments and recommendations are offered on what other studies should support and how to enhance the tool in question. This section presents comments on the positive and negative aspects of the tool in question. Such comments relate both to the theoretical background of the tool and its application in various regional studies. In this context, this toolkit also aims to provide the experience derived from the previous uses of the tool in question for the persons or organizations undertaking studies of regional competitiveness agenda. Further, recommendations are offered on how each tool can be enhanced by engaging in studies which fields. This helps build the groundworks to continuously and dynamically update the regional competitiveness agenda.

In addition to the analytical tools introduced in this toolkit, the final chapter offers a framework to move from analyses to a synthesis and create a story. The final chapter of the toolkit offers recommendations for the path subsequent to the use of tools in the context of regional competitiveness agenda. Such recommendations involve how to synthesize the results and create stories of regional competitiveness agenda. Thereby, it is intended to build a setup that complements one another and embraced by the regional stakeholders, rather than analytical studies piled up one after another using the tools. It is expected in this context that studies undertaken to set the regional competitiveness agenda present practical stories that give momentum to regional development rather than ending up in shelves.

INTRODUCTION

This toolkit introduces various tools that can be employed to identify regional competitiveness and areas open to development in respect of competition, and discusses the potential contribution of such tools in setting the competitiveness agenda. The primary purpose of devising this toolkit is to contribute to individuating the regional competitiveness agendas by region, distinguishing one from another, and relying on hard data to the extent possible. It is aimed to support those institutions in our country, including mainly development agencies, which engage in regional analyses such that they will go beyond mere statistical presentations and undertake specific analyses. This toolkit may make it possible to respond to various needs of analysis arising from regional disparities and diversify the analytical sets of institutions. Particularly, an increase in the quality of sectoral and thematic information compiled at regional level may improve the quality of both regional plans and subsequent regional programmes.

This toolkit is authored by the Economic Policy Research Foundation of Turkey (TEPAV) in the context of Competitiveness Agenda for GAP Region Project, implemented by Southeast Anatolia Project Regional Development Administration (GAP RDA) with the technical assistance of the United Nations Development Programme (UNDP) and the financial support of European Union. Realised by the contributions of GAP RDA among others, the preparations for this work started as early as in April 2011 with TR31 (İZKA-Izmir), TRC1 (İpekyolu-Gaziantep, Adıyaman, Kilis), TRC2 (Karacadağ-Şanlıurfa, Diyarbakır) and TRC3 (Dicle-Mardin, Batman, Şırnak, Siirt) identified as pilot regions and subsequent conduct of pilot analyses. The initial version of the toolkit was introduced to the administrators of pilot development agencies in a meeting in Şanlıurfa on 11 March 2013; then pilot analyses were conducted in cooperation with experts from development agencies in a workshop held in Ankara on 1–2 April 2013. Based on feedback from the administrators and experts from UNDP, GAP RDA and development agencies, the toolkit was finalised into this report.

The present work introduces nine analytical tools which are based on data analyses at varying levels and recommended for use in competitiveness analyses of regions and provinces:

1. **Investment Climate Assessment:** This involves an assessment of the environment for doing business in provinces based on data mostly collected by surveys and highlights potential areas of improvement. A review of failures in investment climate comparatively with other regions and countries will inform which investment climate factors in a region or province are in priority and help the regional competitiveness agenda focus on objectives.

2. **Exports Performance and Production Structure Analysis:** Based on analyses on the growth, diversity and development axes of exports, this provides hints on new areas that should be supported in the existing export structure of provinces, and new export markets towards which the production patterns of provinces should be steered. Since such findings shed light on the current situation of a province or region and the likely economic structure that may transform in the future, it can be employed both for baseline analysis and setting goals in the preparatory stage for the regional competitiveness agenda.

3. **Value Chain Analysis:** This is a tool that can be employed to identify obstacles to regional competitiveness and formulate policies to overcome such obstacles. By examining the relations and connections among suppliers, producers, vendors and many other intermediate actors in the creation of a product, this tool helps better understand the competitiveness of a region and its impact on growth.

4. **Skill Set Analysis:** It is an analytical framework that analyses local labour force participation, labour profile, skill sets possessed by a province, labour demand by firms and interactions, and explains how to identify the potential areas of intervention that may arise from such supply and demand analyses. The promotion of skill profiles need for transformation into information economy is critical to competitiveness agenda. In this context, if regions can analyse their specific labour market conditions and reflect the resultant outcomes/priorities to their competitiveness agendas, they will have more effective agendas.

5. **Connectivity Analysis:** Examining the domestic and foreign modes of connection of a region, connectivity

analysis aims to identify the bottlenecks and develop recommendations of programmes and projects to overcome such bottlenecks. The connectivity of region refers to all of its modes of connection with the external environment and its districts and villages within the region, and the presence, activeness and effectiveness of such modes. In addition, such features as the communications infrastructure, foreign language speaking rates etc. are factors for the connectivity of a region/province. Connectivity analysis aims to examine the region's access to such modes of connection and their effectiveness, compare the results with similar or competing regions, identify bottlenecks and develop programme recommendations.

6. **Analysis of External Economic Environment:** This offers a framework which includes the analyses that should be undertaken in respect of countries with economic relations and how such analyses may inform the policy alternatives when formulating the competition strategy of a province. It is particularly important to analyse in what network of economic relations and opportunities the province or region under study is located in order to address the competitiveness agenda in a more general economic environment.

7. **Analysis of Regional Innovation Ecosystem:** This involves a framework, considering all stakeholders of an innovation ecosystem, to position the region in line with the innovation indicators and set the agenda. The degree of importance which this framework may have as a constituent part of the competitiveness agenda may vary by the outcomes/findings from other analytical tools covered in this report. Outcomes from the investment climate, export performance and entrepreneurial ecosystem assessments will shed light on how important innovation is in a region. Indeed, it may not be realistic at all in economic terms that innovation is equally important for the competitiveness agenda of every region.

8. **Analysis of Local Entrepreneurial Ecosystem:** This aims to analyse the conditions necessary for the development of entrepreneurship to contribute to competitiveness. It identifies the key stakeholders for entrepreneurship in the region and establishes the baseline of factors necessary for the development of entrepreneurship, and aims to create awareness of potential opportunities and bottlenecks. In an environment where competitiveness and entrepreneurship are addressed increasingly together, it is critically important to associate the regional competitiveness agenda with a regions entrepreneurship and how it can be enhanced.

9. **Quality of Life Analysis:** This analysis can be conducted in various ways due to the diverse meaning of quality of life. This chapter explains how to structure an analysis of quality of life that can be associated with regional competitiveness agenda. In this context, it is possible to use the existing indicators and indices as well as new indicators that can be derived using the methodology for the existing ones. In addition, this tool aims to explore the factors of attention when conducting an analysis that will highlight the association of quality of life and competitiveness agenda, and subsequently prioritise the policies in this line.

A synthesis that will emerge from the collective assessment of findings and results of analyses conducted using various tools may be a major input to the regional competitiveness agenda. Each of the nine tools explained in this toolkit provides important hints on competitiveness, and is complementary to one another. Such complementarity is addressed in the "For Conclusion" section of the toolkit mentioning the connection between competitiveness and regional development agenda.

In the process of setting regional competitiveness agendas, all of these tools may be utilized or a modular approach may be adopted which consists of tools focusing on priority themes. As indicated above, not all themes are equally important to every region. It is advisable to prioritise among the various parts of the toolkit to correctly use time and resources.

1. INVESTMENT
CLIMATE ASSESSMENT

1. INVESTMENT CLIMATE ASSESSMENT

Table 1: Investment Climate Assessment Summary Table

Purpose of Use	1. Identify the conditions affecting the private sector investments and growth of companies based on the experiences of the firms 2. Analyse the impact of existing policies on the firms 3. Identify the priority areas in increasing the competitiveness of the private sector
User Profile	Experts competent in the fields of statistics, econometrics and economics
Method	Survey study, analysis of survey data, econometric analyses, benchmarking
Potential Outputs	1. Analysis of the elements affecting the firm's performance 2. Priority problem areas of the investment climate (elements of the competitiveness agenda)
Relevant Entities and Stakeholders	Various public entities, development agencies, universities, non-governmental organizations, firms which are interested in policy recommendations
Critical Issues	1. Determining the sample for the survey has a critical importance for the reliability and availability of the outcomes. Firm size of the sample must accurately represent the national and regional economy with regard to the location of the firms and the sector they operate in. 2. Details and variety of the questions may differ depending on the topic which ICA aims to analyse in depth.

Investment Climate Assessment (ICA) is a tool which analyses the conditions affecting the private sector investments and growth of firms in a country or region based on the experiences of the firms and aims to identify the areas of reform required for increasing the competitiveness and productivity of the private sector. The Investment Climate Assessment works, which are carried out with the cooperation of the World Bank and various organizations in each country, can be defined as a comprehensive and up-to-date depiction of the investment climate where firms of different sizes operate in more than 125 countries. Investment Climate Assessment was conducted twice in Turkey in years 2005 and 2009. While surveys representing the firms across Turkey were used in these works, regional surveys were conducted in four regions identified as pilot areas for the first time in the scope of this toolkit development project.

Investment climate analysis includes risks and gains related to the investment, existing and expected political, organizational and behavioural factors. Positive investment climate conditions must be ensured in order for firms to make investments effectively, create employment opportunities and grow. When considered from this point of view, it is possible to say that a good investment climate is necessary not only for the growth of firms, but also for increasing the competitiveness of the economy and helping the general development of the society.[3] Investment climate assessment can be used as a tool for assessing the investment climate and identifying the areas where reforms are required, while taking into account the comprehensive impact of public policies on the investment climate.

The main purpose of ICA, which is used as a tool for increasing competitiveness is to contribute in creating the competitiveness agenda. In order to fulfil this purpose, local and national policy makers need to clearly define the obstacles to the investment and also formulate the policies for enhancing the investment climate as consistent and holistic regulations which will be able to eliminate these obstacles.

[3] Stern, Nicholas H. 2002. A Strategy for Development. Washington, D.C.:World Bank.

ICA is a useful tool for identifying the obstacles to the private sector investments that has existed from past to present, on a country and region level. One of the most important features of ICA is that, its methodology has been implemented in a certain standard in all countries. Therefore, indicators about the investment climate can be measured with inter-country comparisons, which makes it possible to compare some indirect expenses that macro data is insufficient to measure, or which are difficult to quantify, such as the loss caused by power outage or the impact of the combat against informality. World Bank's Investment Climate Survey database, which is open for access, covers more than 100.000 firms in 125 countries. ICA work was previously prepared for the firms across Turkey by the World Bank and other various organizations. However, these works, which provide significant contributions to the competition agenda, have not provided meaningful statistical results on the region basis due to the inadequacy of the sample size. Therefore, it is important that ICA is implemented again in Turkey on a region or province basis.

ICA also provides the opportunity to conduct impact analysis on the implemented policies. While preparing the competition agenda, it might be a good starting point to determine how successful the decisions made and policies implemented before in the region with regard to development and competitiveness were. When considered from this point of view, ICA can provide a very valuable data set to be used for conducting impact analyses on issues such as the incentive system, operation of organized industrial districts and supports provided by development agencies and other organizations.

Table 2: Investment Climate Assessment Steps

STEP 1	STEP 2	STEP 3
Prepare and Apply the Investment Climate Survey	**Analysis of Survey Results**	**Identify the Policy Priorities**
1. Prepare the survey questions according to the purpose and expectations of the study	1. Identify the problem areas of the investment climate via regional, national and international comparisons	1. Identify the highest priority areas among the main problem areas identified by the analyses
2. Identify the sample to represent the firms in the region in a healthy and accurate manner and apply the survey	2. Identify the size of the impact of the investment climate variables on the competitiveness indicators via econometric analyses	2. Identify the policies to enhance the investment climate based on priorities
3. Identify other regions or countries which compete with the region or have similar competitiveness		

Making the Investment Climate "Measurable"

Determining how to conduct such a quantitative analysis as the quality of investment climate starts with selecting the relevant indicators and quantifying these indicators. Indicators showing the level of development of a country are mostly based on macro data. Even though it is easy to measure and compare indicators such as the unit price of the electricity used by the firms or how many days it takes to establish a new business; it is more difficult to conduct measurements and assessments in topics such as informality in a way to make international or regional comparisons.
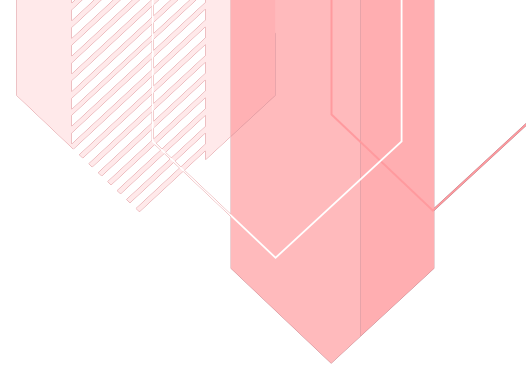
Investment Climate Assessment makes it possible to measure and assess the investment climate under the main titles of Taxes, Bureaucracy and Transparency; Informality, Technological Advancements and Innovation, Access to Financing and Corporate Governance, Access to Infrastructure and Labour Force and Skills, which are explained below in detail. With this feature, ICA can provide input for other tools addressed in this toolkit.

Collection of region-specific data may be required on occasion in order to show the specific economic conditions of the region more clearly while setting the regional competetiveness agenda. In the analyses conducted during the process of setting the specific competitiveness agenda of the region, existing data may not always be sufficient. Collecting original data can provide many opportunities such as testing the new hypotheses about development policies, providing detailed data for the issues on the agendas of development agencies (by adding modules to the survey), monitoring and assessing the impact of previous policies and programs and can possibly make the regional development plans richer.

Which Data Does Investment Climate Assessment (ICA) Use?

Investment Climate Survey
The main data source used by ICA is the Investment Climate Survey which was structured for the preparation of the study. By using the surveys conducted by staying true to the template prepared by the World Bank, a sample is selected to represent the private sector of the country's economy and information is collected from the firms on access to financing, infrastructure, crime, competitiveness and performance. In addition to this standard template, there may be variations depending on the country-specific topics and the areas of focus of this toolkit. For instance, for the ICA prepared by the World Bank and TEPAV in 2007, in order to conduct more in-depth and comprehensive analyses on the topic of focus, which was firms' access to financing, questions in this area were diversified. ICA report of 2012 which was prepared for the TR33 Region has conducted a more in-depth analysis on the production structure and labour force and skills.

Investment Climate Survey (ICS) sample can be prepared by using Union of Chambers and Commodity Exchanges of Turkey (TOBB) Industrial Database and SGK (Social Security Institution) Workplace Surveys Database in Turkey. In order to achieve accurate representation, while selecting the sample, firms are categorized under three titles as scale, sector and region. Survey questions must be answered by company owners and unit managers at the firms. For the questions about company accounting or human resources, help can be sought from authorized persons in the firm with knowledge in the area. For an ICS to be conducted for a region, surveys can be applied up to 350[4] firms at NUTS2 level, with 95% confidence level and 5% margin of error. Manufacturing sectors correspond to sub-sectors with ISIC [NACE (Nomenclature of Economic Activities) could be better: 10-33 manufacturing industries] codes 15-37, 45, 50-52, 55, 60-64, and 72 (ISIC Rev.3.1)[5]. Services include the sub-sectors of construction, retailing, wholesale, hotels and restaurants, transportation, storage, information and communication technologies. Completely publicly operated companies are not included in the ICS. Only the companies of at least 3 years old which employ 5 or more employees can be included in the sample. It is important to select the sample according to these features in order to make comparisons with the surveys conducted by the World Bank in Turkey and other countries.

ICS uses two types of survey modules as manufacturing and services survey forms and the data is collected via face-to-face interview method. Although most of the questions are same in these two types of modules, there are also different questions for each main sector group (For instance, questions about manufacturing are not asked to retailing firms). In a typical ICS, criteria about firm's properties (size, gender participation ratios etc.), access to financing, annual total sales, costs input and employment, employment structure, innovation and technology, infrastructure, commerce, crime, competition, capacity usage, land and land permissions, taxes, informality, public-private sector relations and performance are used. Most of the questions in a standard question form aims to identify the characteristics of the investment climate.

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[4] For detailed information on the calculation of required sample size as 357 for a 5.000 population, 381 for a 50.000 population and 384 for 500.000 population according to the mentioned selection criteria, see: Hülya Çıngı (1994), Örnekleme Kuramı Hacettepe Üniversitesi Fen Fakültesi Basımevi (Sampling Theory, Hacettepe University College of Science Press).
[5] ISIC (International Standard Industrial Classification), is an economic activity classification prepared by the United Nations which systematically organizes the fields of activity of the firms.

Other Data Sources

ICA uses other sources of data in addition to the Investment Climate Survey. The main ones are the BEEPS (Business Environment and Enterprise Performance Survey) of the World Bank which focuses more on the services sector and the Doing Business which consists of indices measuring doing business in all countries, which is also prepared by the World Bank (see. Box 1). Both of these databases can have a complementary role for the Investment Climate Survey in identifying the problem areas related to the investment climate. In addition to these sources, indicators and sources which will make it possible to understand the results and impact of the policies about the investment climate and make an Investment Climate Assessment which is prepared for a certain region comparable on the international basis are given in Table 3:

Table 3: Investment Climate Assessment Indicators and Sources

INDICATOR	SOURCE
Selection of the firms in the sample	TOBB Database, TURKSTAT (Turkish Statistical Institute) Annual Industry and Service Statistics 2003–2013
Demographics, survival and labour force productivity of the firm	TURKSTAT Annual Industry and Service Statistics 2003–2013, Social Security Institute Registered Employment Data
Macroeconomic Indicators (e.g. Total national income, labour force participation rate, unemployment rate, inflation, etc.)	World Bank World Development Indicators
Indicators About International Trade	UN ComTrade Database, TURKSTAT, Observatory of Economic Complexity (MIT)
Indicators about firms' use of financing	BRSA (Banking Regulation and Supervision Agency)
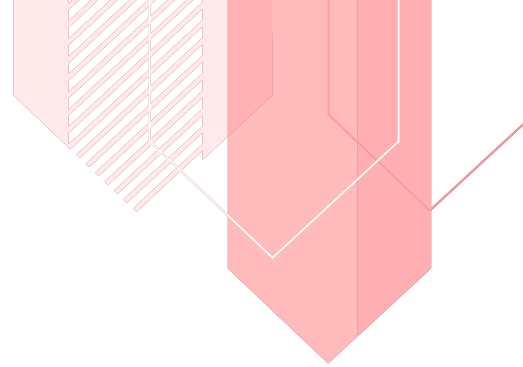
Box 1: Doing Business in Turkey

Results of the Doing Business survey conducted annually by the World Bank is a source to which firms willing to invest in different countries can refer. Doing Business data set which includes titles such as the implementation of contracts, establishing new businesses, taxes and legislation, provides data for many countries on a yearly basis. In Table 4, the level of easiness of the issues such as construction permissions, employing workers and property transfer in Turkey's neighbours Iraq and Syria, is compared to Turkey. While Turkey is ranked better in other areas besides construction permissions and employing workers compared to Iraq and Syria, it is observed that, as occupational health and safety gained importance in Turkey, regulations imposed in the recent years in this regard make doing business harder in these areas.

Table 4: Turkey, Iraq and Syria in the World Ranking According to Doing Business Criteria 2014-2015

	Turkey		IRAQ		SYRIA	
	2014	2015	2014	2015	2014	2015
Doing Business	51	55	165	156	146	175
Establishing Businesses	64	79	141	142	136	152
Construction Permissions	137	136	189	9	8	189
Employing Workers	35	34	64	36	18	76
Property Transfer	55	54	140	109	108	140
Access to Loans	86	89	163	180	178	165
Protecting the Investor	12	13	77	146	136	78
Paying Taxes	50	56	113	52	49	117
Foreign Trade	92	90	143	178	178	146
Bindingness of Contracts	42	38	175	141	140	175
Bankruptcy Proceedings	118	109	145	189	189	146

Source: IFC-World Bank Doing Business Report 2010

How is the Investment Climate Survey Data Used?

Investment Climate Survey (ICS) data can be used on different platforms with the aim to provide useful input for the competitiveness agenda of the private sector. First of these is to divide the firms in the region based on various features such as scale, sector and property and achieve findings about the investment climate via depiction and detailed comparison methods. Second method is the econometric analysis which directly measures the impact of investment climate variables on the indicators such as productivity, employment and growth which determine the competitiveness. These two methods are explained below in detail with examples. In addition, questions can also be added in order to measure the impact of the abovementioned previous policies and used as a third way.

1- Benchmarking

One of the most significant strengths of ICA as a tool to identify the obstacles for increasing the competitiveness of the private sector is that it makes it possible to conduct international and inter-regional comparisons. Therefore, in addition to the complementary data about the investment climate, it is also possible to conduct international comparison. While making a comparison, depending on the size, sector, legal status of exporting firms, native/foreign property, region, urban/mixed urban features allowed by ICA, a comparison can be made among firms. Therefore, in addition to average values, the distribution of the variables about the investment climate by features such as property, region and export status can also be determined. For instance, it is observed that Figure 3 tells a different story compared to Figure 1 on the Turkey average of the distribution of the firm sizes by regions.

Figure 1: Distribution of the Firms Which Participated in the Investment Climate Survey by Size
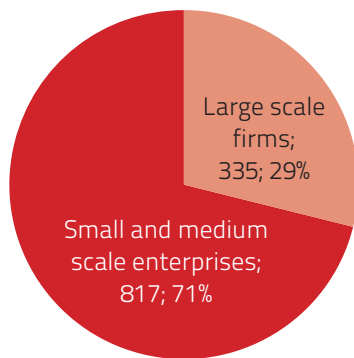
Source: ICS Turkey, 2009

Figure 2: Distribution of the Firms Which Participated in the Investment Climate Survey by Region
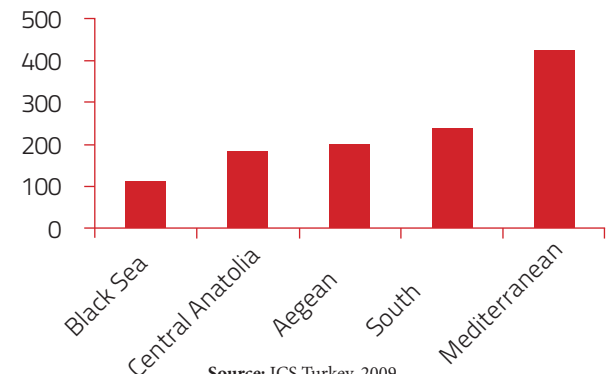
Source: ICS Turkey, 2009

Figure 3: Distribution of the Sizes of Firms by Region[6]
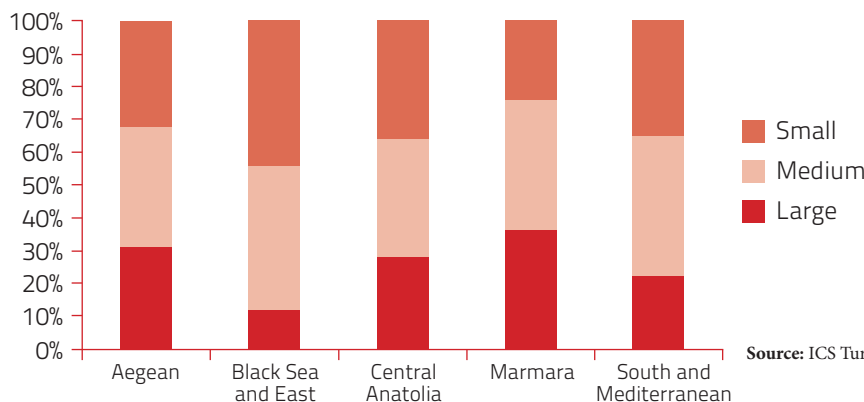
Source: ICS Turkey, 2009

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[6] Marmara Region includes Bursa, İstanbul and Kocaeli; Aegean Region-Denizli, Izmir and Manisa; Central Anatolia Region- Ankara, Eskişehir, Kayseri and Konya; Southern Anatolia Region- Adana, Gaziantep and Kahramanmaraş; and Black Sea—Eastern Anatolia Region- Erzurum, Malatya, Samsun, and Trabzon.

Main Parts of the Investment Climate Assessment

Taxes, Bureaucracy and Transparency, Informality: Firms are obligated to work with the public in various matters while both establishing and maintaining their businesses such as paying taxes, obtaining certificates and registration and complying with health, security and environmental protection regulations. Therefore, a well-functioning bureaucracy and registered transactions might affect the investment climate in various direct or indirect ways. ICA can be used for determining in which direction and how much the firms' relationships with the public affect their competitiveness, under the main titles of taxes and tax office, financial reporting and bureaucracy.

Table 5: Investment Climate Survey Taxes, Bureaucracy and Transparency, Informality Module Titles

TITLES
Whether the firms know and use the support and incentives provided in the region/country
Firms' relationship with the supporting public entities
Whether the legislation on the activities of the firm is sufficient and clear
The degree of how much informality affects the activities of the firm
How the judicial system resolves business conflicts

When the percentage of firms combating informality in Turkey is compared to other countries, it is observed that the ratio of firms in Turkey is high (Figure 4). Similarly, in the investment climate survey conducted in 2012 for TRNC (Turkish Republic of Northern Cyprus) , it is observed that the problem of informality is bigger compared to other similar countries. Since this study, which was conducted for TRNC, was true to the standard ICS template, it contributed to determining the policy priorities in an economy on which there are limited data and scientific studies.

Figure 4: Share of the Firms which Compete Against the Informal Firms in the Manufacturing Sector (%)
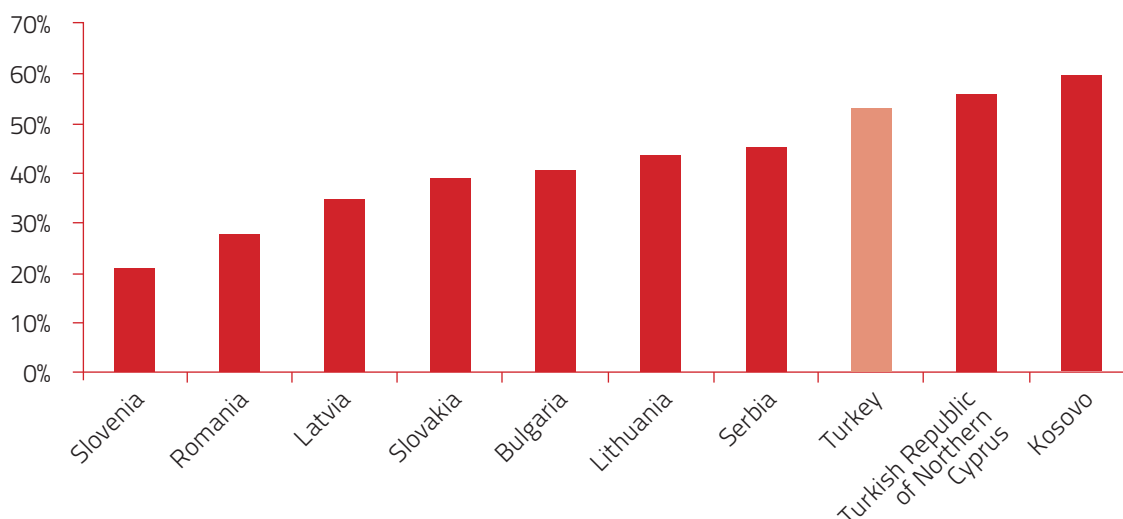
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[7] TRNC Investment Climate Survey was used for comparison because it was conducted in a recent period in a region close to Turkey.
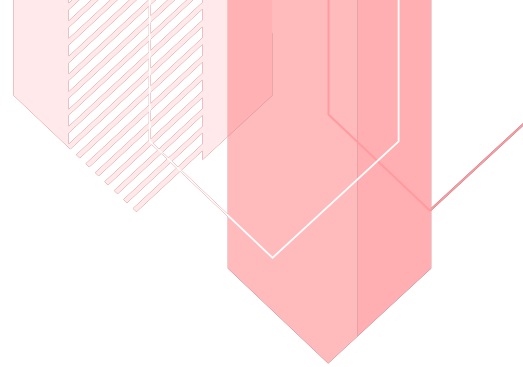
Technological Progress and Innovation: Firms' technological infrastructure and innovation capacities are closely related to their productivity and growth. Public interventions can also be effective in both providing physical, institutional and human infrastructure and increasing the technological capacities and competitiveness of companies with incentive policies. In a standard ICA, this topic is examined under the titles of innovation, adoption of technology and quality. An international comparison of the firms using e-mails for business activities is provided in Figure 5.

Figure 5: Share of the Firms Using E-mails Regularly in Their Relationships with Customers and Suppliers (%)
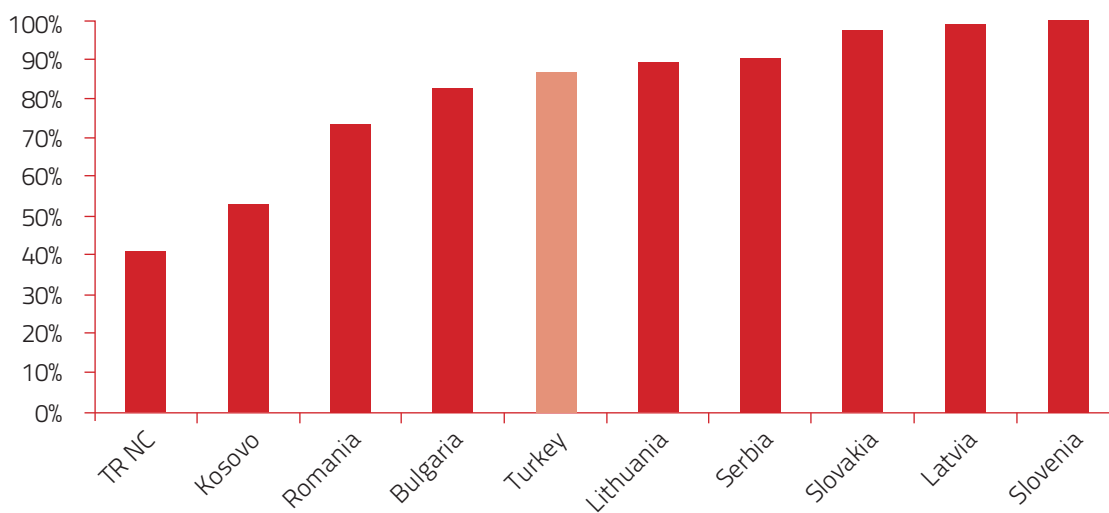
Source: World Bank Investment Climate Survey Database, TRNC Investment Climate Survey

When this data is analysed, it can be stated that Turkey has an average rating among similar countries, whereas the firms in TRNC, which is currently an isolated economy, are not using technology enough in their activities.

Table 6: Investment Climate Survey Innovation and Technological Progress Module Titles

TITLES
Whether the firms engaged in innovation and R&D activities in the recent years
Type of innovation activities carried out by firms
Type of financing of the innovation activities of firms
Status of cooperation of the firms with other organizations and firms in R&D and innovation activities
Registered trademark or patent usage

An ICA was conducted on service, manufacturing and retail sectors by GAP RDA with the technical assistance of UNDP in 2012 and it was found out that innovation activities in TR31 (İZKA), TRC1 (İKA), TRC2 (KKA) and TRC3 (DİKA) regions focused more on small and medium size firms and the large scale firms in the sample did not engage in innovation activities. This result is relevant to the fact that innovation activities of firms are carried out in their headquarters in Istanbul and that small and medium sized firms conduct more innovation activities in order to grow. ICA can also provide similar data on scale dimension as well as sector dimension: For instance, when innovation activities are analysed on the sector level this time, manufacturing firms are observed to be less innovative compared to other firms. (Figure 6 and Figure 7)

Figure 6: Ratio of the Firms Engaged in Innovation Activities in the Last Two Years (%)
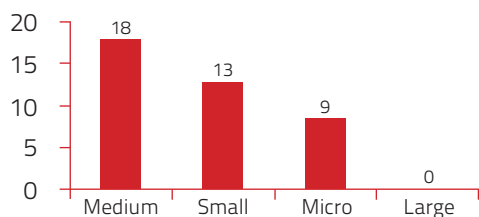
Figure 7: Ratio of the Firms Engaged in Innovation Activities in the Last Two Years (%)

Access to Financing and Corporate Governance: Developed and well-functioning financial systems affect the performances of both existing firms and entrepreneurs. In an economy where access to finance is facilitated, firms can expand their capital bases with lower costs and more easily and thus invest in scale or productivity. ICA collects the information on how easily firms access financing, structure of their assets and collaterals issued for loans and identifies bottlenecks on the issue and therefore helps shape the policy recommendations.

Table 7: Investment Climate Survey Access to Financing and Corporate Governance Module Titles

TITLES
Types of financing preferred by firms for new investments and business capital
Reasons for selection, costs and duration of the financing tools used by firms
Firms' reasons for not using loans
Obstacles faced by firms in loan applications and other financing tools

It can be claimed that the obligation to provide collaterals is an obstacle for firms to access financing. As indicated in Figure 8, more than half of the firms in Turkey stated that they had to provide collaterals while getting loans. Although this situation does not attract attention as a significant problem area when compared to other countries, it can offer an important clue for determining the problems the firms in Turkey and the region suffer from regarding access to financing.

Figure 8: Ratio of the Firms Which Need to Provide Collaterals While Getting Loans (%)
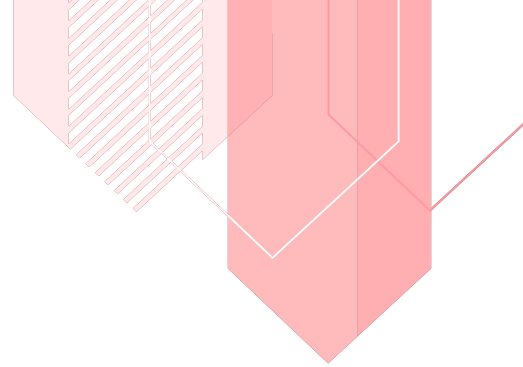
Access to Infrastructure: In the economies where the infrastructure is weak, firms are obliged to spare a bigger portion of their sources for activities such as providing inputs (electricity etc.), obtaining information and getting their products into the market. This situation affects the competitiveness of firms negatively. It especially makes getting into foreign markets much more expensive for exporting firms. ICA ensures the clarification of the areas where reforms are needed, by quantifying the problems faced by firms in accessing inputs such as electricity which firms can obtain via infrastructure, productivity of the logistics infrastructure and the time and money spent on customs transactions. As indicated in Figure 9, access to electricity poses substantial problem for the firms in TRNC. The infrastructure problem, which can be regarded as one of the most important obstacles to competitiveness, might signal for the need for prioritising the policies on facilitating the access to electricity in TRNC.

Table 8: Investment Climate Survey Access to Infrastructure Module Titles

TITLES
Firms' reasons for selecting their locations and their level of satisfaction about this location
Logistics methods preferred by firms in the domestic market and foreign trade
Types of shipping used and preferred by the firms
Obstacles firms face in accessing infrastructure elements such as electricity, water, internet and natural gas
The degree of how much service cuts and fluctuations affect the activities of firms

Figure 9: Share of the Firms Which See the Access to Electricity as a Significant Problem (%)
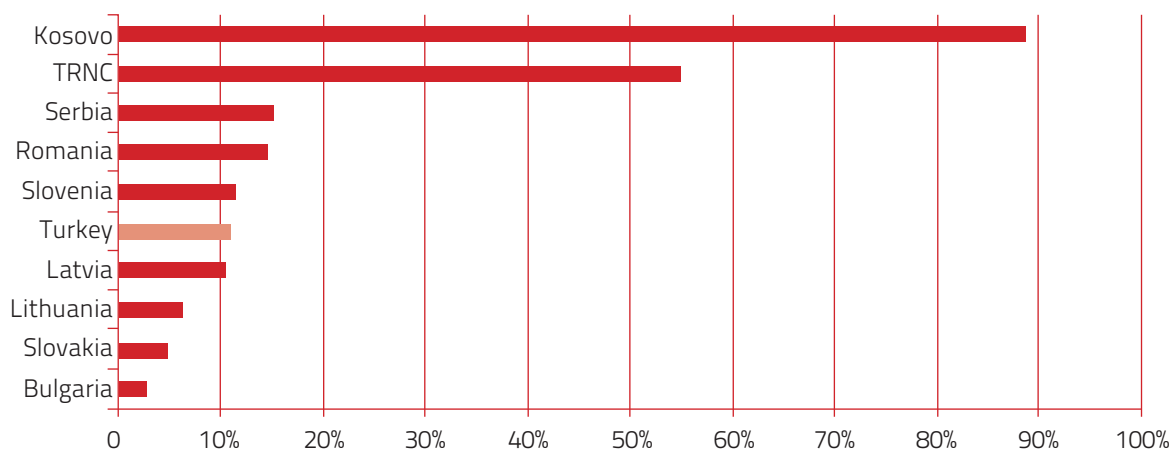
Source: World Bank Investment Climate Survey Database, TRNC Investment Climate Survey

In the investment climate surveys, sometimes the quantitative data on the firms' activities can also be collected. Information on the physical location where the firms operate is one of these. As indicated in Figure 10, firms in the UNDP-GAP sample which operate in the manufacturing industry have larger areas in square meters compared to other types of firms. This information can be compared to the average square meters of the areas used by the firms operating in the manufacturing industry in Turkey and the relative situation of the firms in the area where the UNDP-GAP Survey was conducted can be assessed. In addition, the data on land prices can be used and thus the difference can be highlighted between the regions such as Izmir where the land is more valuable and other three regions. Therefore it can be emphasized that the firms in the manufacturing industry in Izmir might face higher costs in cases of expanding their scales.

Figure 10: Total Area Where the Firms Operate (m²)

Source: UNDP GAP Investment Climate Survey
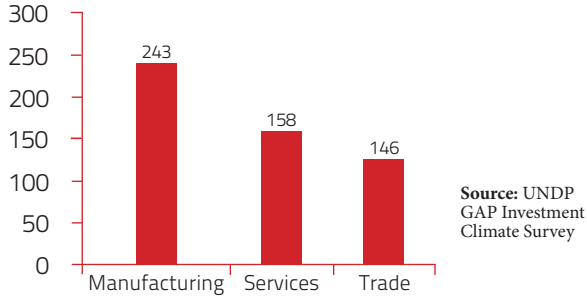
Figure 11: Total Area Where the Firms Operate (m²)

Source: UNDP GAP Investment Climate Survey
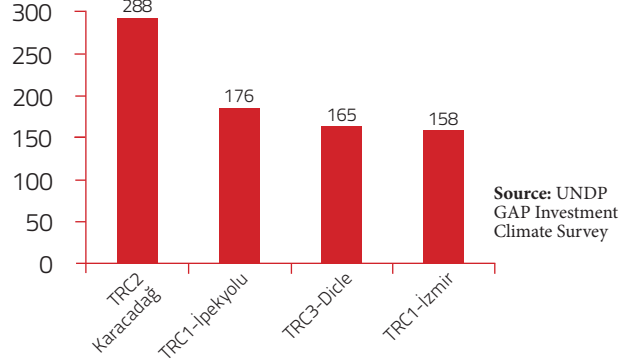
Labour Force and Skills: Skills of the human resource are one of the most important inputs which affect the investment climate. In addition to the number of employees employed by firms, it is required in ICA to identify features especially such as the qualifications of labour force, education levels of employees and their technical expertise, the way they gained their skills and the degree of which these skills meet the needs of firms. It is beneficial to shape the labour market and education policies by taking into account the tendencies and restraints of the investment climate with regard to labour force and skills. Average number of employees of firms can also provide significant clues on the structure and fundamental tendencies of the private sector of an economy.

Table 9: Investment Climate Survey Labour Force and Skills Module Titles

TITLES
Number, gender, age and education levels of the employees employed by firms
Whether the firms find the existing skill levels of employees working at the firm adequate
The degree and how the problems on skill mismatch affect the activities of the firm
Recruitment methods of firms

For instance, as indicated in Figure 12, average number of employees working at the firms in Turkey is quite high compared to other countries. This can indicate that there is no significant obstacle to the growth of the firms. However the fact that this figure is below 20 for the firms in TRNC might indicate the unfavourableness of the investment climate of the firms in TRNC; since it might show that the reason for the existence of such small scale firms can be that the firms are not able to grow due to the unfavourable conditions of the investment climate. Detailed analyses on the Skill Set are provided in Section 4.

Figure 12: Average Number of Employees by Countries

Source: World Bank Investment Climate Survey Database, TRNC Investment Climate Survey
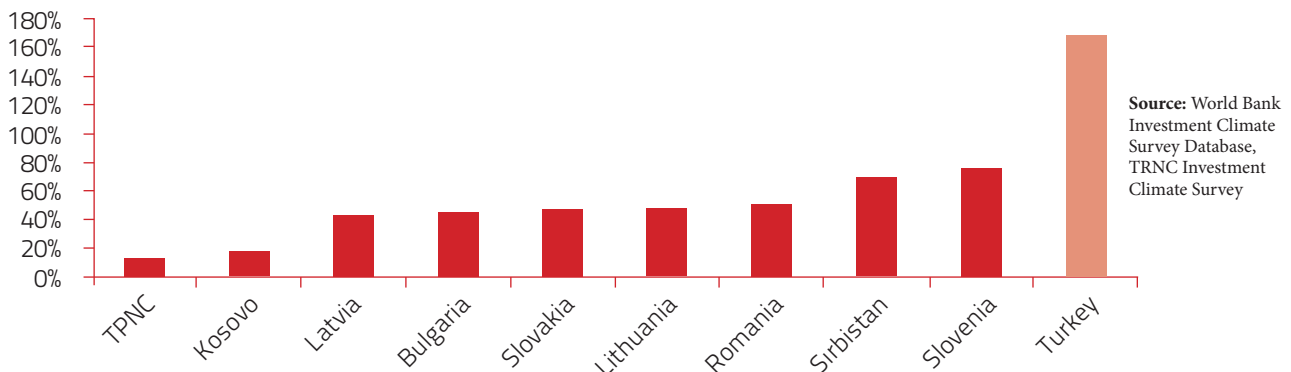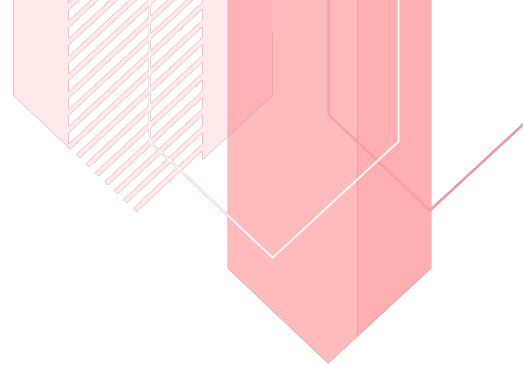
In addition to the complementary information on the main elements, Investment Climate Survey also includes certain questions which will identify the opinions of firm owners and managers on the obstacles to the investment climate. Firm owners' and managers' trust in the investment climate might affect important decisions such as establishing new firms and expanding their scale. For instance, the issues which the firms participated in the UNDP-GAP Investment Climate Survey thought as serious obstacles for them were presented in Figure 13. Tax related issues pose serious obstacles for most of the firms in the sample. While tax rates are observed to be the most important obstacle in the Turkey example, it draws attention that issues on tax administration and legislation, access to financing and labour market do not pose serious obstacles.

Figure 13: Investment Climate Obstacles of the Firms in the Selected Regions (%)

Percentage of the firms which said yes to the question "Does any of the issues mentioned below pose a serious obstacle for your business activities or business growth?"
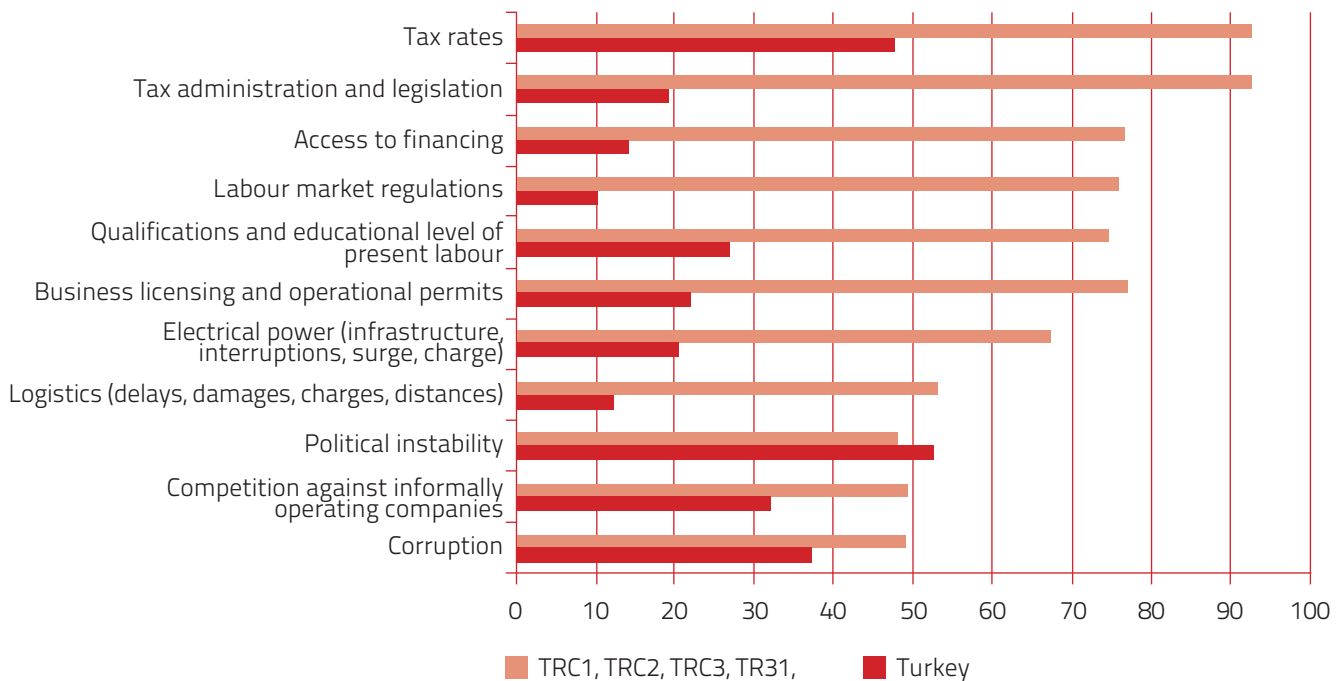
2. Econometric Analysis

For identifying the obstacles to competitiveness and prioritising the policies, econometric techniques are also used on the firm level in addition to comparative analyses. These techniques are used for making an inference about the impact of the investment climate related variables on economic factors such as growth, employment and productivity. Thus, preparing policy recommendations becomes easier and scientific justification is provided for the reforms for enhancing the investment climate.

Methodology of the econometric analysis which identifies the direction and level of the impact of the investment climate factors on economic factors is summarized in five steps:

- **"Competitiveness indicators" under which the impact of investment climate factors will be examined in econometric analyses are selected depending on the purpose of the survey, needs of the region, results of the summary statistics of the survey and reliability of the data.** Criteria such as employment and productivity are usually analysed as competitiveness indicators in studies in the literature. However alternative indicators can

also be selected such as whether the firms export or develop new products. If the survey was conducted with a certain problem area under focus, a competitiveness indicator can also be selected in compliance with this focus area. This selection will differ depending on the prominent indicators in the assessment of the survey via summary statistics and on the needs of the region. It is important for conducting healthy analyses that the reliability (fullness of the data, adequate number of firms etc.) of the data is taken into account while selecting the competitiveness indicator. Selected competitiveness indicator is the dependent (explained) variable of the regression model to be formed.

- **Investment climate factors (explanatory variables) and other explanatory variables which will be included in the regression analysis (firm size, age, sector and year etc.) whose impact on competitiveness indicators will be determined are selected.** As summarized in the previous sections, investment climate variables in the survey are divided into five categories: (1) taxes, bureaucracy, transparency and informality (2) technological advancement and innovation (3) access to financing and corporate governance (4) access to infrastructure (5) labour market and skills. Investment climate factors are selected from each category to be used in analyses. Besides the investment climate variables, other variables (firm size, age, sector and year etc.) are also used in regression analyses which are thought to have an explanatory impact on the competitiveness indicators. Selected investment climate factors and other variables (firm size, age, sector and year etc.) form the explanatory variables of the regression model to be formed.

- **Selected competitiveness indicators, investment climate factors and other explanatory variables are converted into variables suitable for econometric analysis.** When building the logarithm for quantitative variables such as average duration of power outage, employment etc., dummy variables are created for qualitative questions such as having a quality control certificate or exporting etc. At this point, the calculation of the productivity variable differs from other variables. As is known, there is more than one method for calculating productivity. Solow Residual method, Trans-Log productivity calculation, Olley and Pakes (1996) or Levinsohnn and Petrin (2001) productivity calculations can be used. After required conversions are done for the variables to be included in the regression analysis, it should be checked whether there is high correlation between explanatory variables (multilinearity problem). If there is high correlation between the explanatory variables some of the variables can be eliminated. An alternative way is to create an index from the variables with high correlation and use this index as an explanatory variable. Similar to the principal components analysis, creating indices is also a frequently used method in ICA studies.

- **Depending on the structure of the dependent variable (selected competitiveness indicator) the econometric analysis method suitable for the topic is selected and the regression is conducted.** At this point, it is not possible to recommend a one-type model. The model to be chosen might vary depending on whether the survey is a one-year survey, whether the dependent (explained) variable is qualitative or quantitative, relationship between the dependent variables and explanatory variables and whether the assumptions of classical linear regression models are met.

- **Reliability of the model is assessed and the results are interpreted. Competitiveness indicators of the investment climate variables (productivity or growth etc.) are interpreted.** While constructing the model it is assessed whether the assumptions are valid along with the explanatory power and economic and statistical significance of the model. After the reliability of the model is proven, coefficients-constant term and slope parameters- are interpreted. Coefficients are interpreted based on their signs and degrees. Thus the direction and level of the impact of investment climate variables of the survey on the competitiveness indicators such as productivity and growth are calculated.

  o Sign of the coefficient (positive or negative) indicates whether the relationship between the explanatory variable and dependent variable is in the same or opposite direction. For instance, if the explanatory variable is a quantitative variable, a positive sign of the coefficient of the relevant variable indicates that the dependent variable will also increase as this variable increases. In cases when the explanatory variable is a dummy variable, if the dummy variable has a positive sign, it indicates

when the dummy variable is 1 (for instance, exporting=1, not exporting=0) the value of the dependent variable will be higher. While interpreting the sign of the coefficient, it shall be checked whether it is consistent with the economic expectations.

o   While interpreting the levels of the coefficients, structure of the variables (linear or logarithmic) should be taken into account. Regressions where explanatory and dependent variables are logarithmic are called as double log models. Coefficients give the elasticities in double log models. Coefficients -elasticity values- in double log models indicate what percent increase in the dependent variable is caused by one percent increase in the explanatory variable. In other words, average impact of each investment climate variable on the dependent variable can be calculated when all other variables are held constant. In ICA studies, the interpretation the elasticities of dependent variables such as productivity or employment with regard to various investment climate variables are frequently used. On the other hand, coefficients in linear models indicate how many units of change a one unit change in the explanatory variable cause in the dependent variable. At this point, the interpretation of dummy variables slightly differs. In dummy variables, when the dummy variable is 1, it shows how high (or low if it has a negative sign) the dependent variable will be. Mentioned coefficient interpretations apply in cases when the dependent variable is quantitative. In models where the dependent variable is qualitative (probit, logit, tobit) coefficients are not interpreted without special conversions.

As an example, one of the results achieved at the econometric analysis conducted by using the data from Investment Climate Assessment Turkey 2007 study is presented in the table below. Impact of the investment climate variables of the survey on productivity and employment are calculated in this study:

Productivity (P) equation,

$$\log P_{j,it} = \alpha_P + \alpha'_{IC}IC_I + \alpha'_C C_I + \alpha'_{Ds}D_j + \alpha'_{DT}D_t + (v_{P,i} + \varepsilon_{p,j,it})$$

Labour force demand (L) equation,

$$\mathrm{Log}L_{j,it} = \gamma_L + \gamma_P\log P_{j,it} + \gamma_w\log W_{j,it} + \gamma'_L IC_I + \gamma'_C C_I + \gamma'_{Ds}D_j + \gamma'_{DT}D_t + (v_{L,i} + \varepsilon_{L,j,it})$$

In the equations, IC represents investment climate variables, C represents other explanatory variables and D represents dummy variables based on industry, size, age and year. Explanatory variables used in the regression are presented below. When the coefficients in this table are analysed, if these coefficients are higher than zero, it indicates that the productivity and price variables on the left side of the equation are affected positively by the investment climate variables. For instance, the coefficient of the variable for qualified personnel who had trainings in the last two years is 0.02 and it is statistically significant. This means that, when other conditions are held constant, if the share of the trained qualified personnel increases by 1%, it will increase the productivity by 0.02. Similarly, when other conditions are held constant, it is possible to say that 1% increase in the share of the unqualified workers decreases the firm's productivity by 0.11%. Regarding the qualifications of the firm manager, if a firm's manager is educated, it increases employment by 0.45%. In other words, when other conditions are held constant, it is projected that if a firm's manager is educated, it will increase the firm's employment by 0.45%. The significance level shown as "***" indicates that the statistical significance level of the outcomes is 1% and that the coefficients are statistically significant. This analysis and other similar ones will make it possible to identify the different priorities in competitiveness agenda of each region, when ICA is conducted specifically for regions with different economic characteristics.

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[8] Investment Climate Assessment Turkey, TEPAV, 2007

Table 10: Output Example of Econometric Analysis: Estimated Coefficients of the Relationship between Labour force and Skill Variables and Productivity and Employment

Explanatory labour and skill variable	Dependent variable		
	Productivity	Employment	
	Coefficient (a)	Coefficient	Significance (b)
Manager's education (dummy variable)	–	0.45	* * *
Percentage of unskilled workers in the firm's work force	–0.11	–	–
Percentage of part-time workers in the firm's work force	–0.003	–	–
Internal training (dummy variable)	–	0.2	* * *
External training (dummy variable)	–	0.33	* * *
Skilled workers recruited in the last year	0.02	–	–
Percentage of employees with at least one year of university experience	–	–0.01	* * *

The significance level shown as "***" indicates that the statistical significance level of the outcomes is 1%.

Source: Investment Climate Assessment Turkey 2007.

Table 11: Selected Variables Used in Econometric Analyses

INFRASTRUCTURE VARIABLES	
Number of days spent in customs transactions for exports	Average number of days spent for completing customs transactions for exports (log).
Shipping losses	Average value of the cargo of the facility which is broken, stolen, spilled or lost due to other deficiencies in the vehicles used for transportation
BUSINESS-PUBLIC VARIABLES	
Attempt to crime	The dummy variable which takes the value of 1 if the facility have faced an attempt for a crime in 2003.
Security	Cost for security (equipment, personnel etc.)(log).
FINANCE AND CORPORATE GOVERNANCE VARIABLES	
Loans	The variable which takes the value of 1 if the firm stated that they borrowed a bank loan.
Foreign Borrowing	Percentage of the debts borrowed in a foreign currency
QUALITY CERTIFICATE, ACQUISITION OF TECHNOLOGY, INNOVATION, INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) VARIABLES	
Quality Certificate	The variable which takes the value of 1 if the firm has a quality certificate.
New Product	The variable which takes the value of 1 if the firm has developed a new product or a product line.
LABOUR MARKET AND LABOUR SKILLS VARIABLES	
Qualified workers	Percentage of the qualified workers in the personnel of the firm
Internal Training	The dummy variable which takes the value of 1 if the workers of the facility are offered an internal training.
CONTROL VARIABLES	
Joint-Stock Company	The dummy variable which takes the value of 1 if the facility is a joint-stock company.
Public	The dummy variable which takes the value of 1 if the facility is publicly owned.

As an example, one of the results achieved at the econometric analysis used by the investment climate assessment study[9] conducted in 2003 for Kyrgyzstan, Uzbekistan, Tajikistan, Moldova and Poland is presented in Table 12. In this study, standard least squares regression was used for analysing the impact of various variables on the total factor productivity (TFP):

Productivity equation:

$$\text{In } TFP_1 = Cons + \beta_1 Age + \beta_2 Exports_1 + \beta_3 Foreign\ Ownership_1 + \beta_4 Rent\_predation + \beta_5 Infrastructure_b + \beta_6 Competition_b + \varepsilon_i)$$

Explanatory variables in the abovementioned regression are listed as constant terms (Cons), age of the firm (Age), share of exports in the total sales (Exports), share of foreign capital (Foreign Ownership), bureaucracy and inspection expenses index (Rent_predation), infrastructure index (Infrastructure) and competition level index (Competition). The reason for using bureaucracy and inspection expenses, infrastructure and competitiveness index is the high correlation found between the variables which constitute the mentioned investment climate factors. For instance, high correlation was found in the study between the variables of average numbers of water, power and telephone cuts in a year. Therefore, by using a principal components analysis, a single infrastructure unfavourableness index variable was calculated from the mentioned variables. Similarly, bureaucracy and inspection expenses variable is also an index formed by using the variables on how many inspections were conducted and the bribes paid and time lost due to extreme bureaucracy. When the coefficients in Table 11 are analysed, if the coefficients are higher than zero, it indicates that the productivity is affected positively by explanatory variables. For instance, when other conditions are held constant, firm's productivity increases as the competition in the sector increases. As a matter of fact, total factor productivity is expected to increase by 0.12% when the competitiveness index increases by one unit. An increase in bureaucracy and inspection expenses and infrastructure unfavourableness affects productivity negatively. When the infrastructure unfavourableness increases by one unit, total factor productivity decreases by 0.14%. Impact of other variables were not found to be statistically significant.

Table 12: Output Example of Econometric Analysis: Determinants of Total Factor Productivity

EXPLANATORY VARIABLES	COEFFICIENT	STANDARD ERROR
Age of the firm	0.00041	0.002215
Foreign capital	0.00123	0.000990
Share of exports in total sales	0.00038	0.000956
Bureaucracy and inspection expenses	–0.15158*	0.031502
Infrastructure unfavourableness	–0.14756*	0.031206
Competitiveness	0.12156*	0.003859
Fixed variable	–0.74756*	0.044960

Source: Bastos and Nasir (2004). Significance level shown as "*" indicates that the statistical significance level of the outcomes is 10%.

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[9] Bastos and Nasir, World Bank Policy Research Working Paper 3335, June 2004.

Background Studies and Assessment

Findings from the ICA study are supported with detailed background studies. A study on the general economic status of the region where the investment climate is assessed can be a very useful source of reference while the results of the investment climate survey are being evaluated. In addition, examples for background studies to be conducted on various topics are listed as follows:

- Background studies on administrative obstacles, establishment procedures and licensing
- A background study on quality system and its use
- Background studies analysing access to financing
- Works to help identify the econometric analysis method
- Works on problems to access infrastructure and land, internationalization and direct foreign investment.

Different specific problem areas of each region makes it obligatory to prioritise the policies on increasing the competitiveness in different ways. ICA is a useful tool to be used for this purpose due to its sound methodology and structure suitable for clear policy inferences. It is possible for policy makers to use this tool and compare the suitability of the investment climate on regional, national and international level and identify the factors restricting the regional competitiveness.

2. EXPORTS PERFORMANCE AND PRODUCTION STRUCTURE ANALYSIS

2. EXPORTS PERFORMANCE AND PRODUCTION STRUCTURE ANALYSIS

Table 13: Exports Performance and Production Structure Analysis Summary Table

Purpose of Use	1. Making evaluations on the production structure of regions 2. Analysing the exports performance and seeing the transformation of the production structure 3. Analysing the sector and market structure from a global and regional perspective
User Profile	Experts competent in the field of economics and in particular international economics
Method	Hirschman-Herfindahl Index, Theil's Entropy, Hausmann Diversification Analysis, Proximity Between Products and Density Analysis
Potential Outputs	1. Quality and variety assessments for production, exports and integrated markets 2. Findings on a possible transformation
Relevant Entities and Stakeholders	Development Agencies, Ministry of Economy, TURKSTAT
Critical Issues	1. Reliability of the analyses to be identified by the tools is in direct proportion to the reliability of the exports data (Exports data by provinces published by TURKSTAT is based on the central locations of the firms and thus does not show the actual exports of provinces). 2. In cases when the exports data will not provide accurate and healthy analysis results, employment data can be used but some alterations should be made in the method in such a case.

While exports performance and production structure can be addressed separately, it is also possible to combine two analyses. Since the tools required for a production structure analysis are calculated in the economics literature by using the exports data and two analyses have some common points, these analyses are discussed in one chapter. Production structure analysis on province basis can also be conducted by using employment data. Therefore, first the exports performance analysis to be conducted by using exports data and then the production structure analysis to be conducted by using exports data and employment data are presented in sub-chapters. In the third and the last chapter, possible background studies for this part of the toolset are listed and a general assessment is conducted about the chapter.

Tools to be used for exports performance analysis are listed under four categories as "Change in exports", "Prominent sectors in exports", "Prominent markets in exports" and "Diversity of exports". Tools to be used in production structure analysis are listed under three categories as "Prominent sectors in employment", "Quality of production" and "Product space and ability to leap. "Nature" is in the intersection of both analyses as a prominent topic in the international trade literature of recent years. However, since it can be used for understanding the existing condition and transformation of production structure rather than exports performance, the issue of nature is discussed under the production structure analysis.

In each table under every title, tools regarding the title and data sources to be used for calculating these tools are presented. In the entry part of every topic, first the explanatory table is provided and then the importance of the topic with regard to regional development is discussed. In addition to presenting the formulations of every tool in the tables, differences between the tools and the way they should be interpreted are also explained.

Exports Performance Analysis

Change in Exports

Table 14: Main Indicators and Sources Used for the Change in Exports Analysis
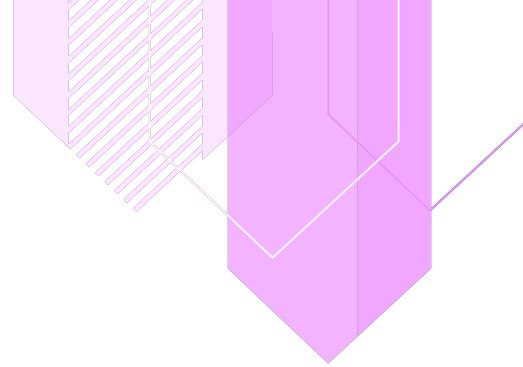
INDICATOR	SOURCE
Annual, quarterly and monthly change in exports	TURKSTAT, TIM (Turkish Exporters Assembly)
Change in sectoral exports of provinces	TURKSTAT, TIM
Change in exports per capita	TURKSTAT, TIM
Contribution of the change in provincial exports to the change in Turkey's export	TURKSTAT, TIM
Sectors with the highest increase and decrease in export	TURKSTAT, TIM
Markets where the province has the highest increase and decrease in export	TURKSTAT, TIM

Export, as a component of the provincial income also contributes to the development of provincial industry. Therefore, sustainable growth of exports has a significant importance for the provincial economy. Difference in the provincial exports is calculated annually, quarterly and monthly based on the same period of the previous year. If the quarterly or monthly difference will be calculated according to the previous quarter or month, seasonally and calendar adjusted exports series provide healthier results.

In cases and periods when it is thought that the growth in exports is not caused by an increase in production, the difference in exports can also be calculated by excluding the sector which caused the increase from the analysis. For instance, the unusual increase in gold exports in 2012 caused the growth in exports to inflate. While the difference in exports was 8,5% when the exports from July 2012 was compared to the previous year with the gold exports included, it was a 6,5% reduction in exports when gold exports were left out of the analysis.

Contribution of the difference in the provincial exports to the difference in Turkey's exports is also an indicator for the performance of the province. It is possible to calculate how much of the difference in Turkey's exports is caused by a certain province by comparing the quantity change in the provincial exports to the quantity change in Turkey's exports. As this ratio increases, the importance of the province in the country's exports also increases. Shares of provinces in the growth in Turkey's exports indicate which provinces are effective in the growth.

When the difference in the provincial exports is examined from a sector and country perspective, it is possible to understand which sectors or markets cause the change. Share of a certain sector or country in the total difference in exports can be calculated by comparing the quantity difference in the provincial exports from a specific sector or to a country to the total quantity difference in provincial exports.

Box 2: Change in Exports of Gaziantep between 2013-2014

Growth rates of exports in Gaziantep province and Turkey are calculated for different periods in Table 15. When the annual data is examined, it is observed that Gaziantep increased its exports in the 2013-2014 period from 6.52 billion $ to 6.65 billion $ and achieved a 2.1% growth. The fact that the growth rate is below the total exports growth of 3.8% of the country indicates that Gaziantep has fallen behind some other provinces in increasing its exports. Only 2.4% of the 5.8 billion $ worth of Turkey's increase in exports in the 2013-2014 period was provided by Gaziantep's increase in exports.

Table 15: Change in Exports in Gaziantep and Across Turkey According to Different Periods (%, 2013-2014)

	GAZİANTEP			TURKEY		
	Annual	January	1. Quarter	Annual	January	1. Quarter
2014 (Billion USA $)	6.65	0.56	1.64	157.61	12.40	40.13
2013 (Billion USA $)	6.52	0.52	1.51	151.80	11.48	36.99
Change	2.1%	8.7%	8.6%	3.8%	8.0%	8.5%

Source: TURKSTAT, TEPAV Calculations

Prominent Sectors in Exports

Table 16: Indicators and Sources Used in the Prominent Sectors in Exports Analysis

TOOLS	REQUIRED DATA AND ITS SOURCES
Revealed Comparative Advantage (RCA)	In the SITC or HS classification, regional or global export-import data accessible on the United Nations Comtrade database and export-import data on a province basis published by TURKSTAT are used.
Revealed Competitiveness (RC)	
Five (ten) sectors with the highest exports	4, 5 or 6 digit sectoral detail exports data of any foreign trade classification is used.
Classification of exports based on the technological content of the products	SITC Rev. 2 classification, 3 digit sectoral detail exports data is used TURKSTAT provides this data.

Prominent sectors in the province's exports are also regarded as the important sectors for income and employment generation for the province. Therefore, it is important for the policy makers who want to design incentives, support mechanisms or develop a clustering policy to know which sectors are the prominent ones in the province's exports.

Tools put together under this title provide information on the sectoral view of the province's exports. The five or ten sectors with the highest exports, is a traditional tool used for determining the prominent sectors in the province. Instead of using this tool on its own for determining the prominent sectors in the province's exports, it should be supported by tools based on competitiveness such as Revealed Comparative Advantage (RCA) and Revealed Competitiveness (RC). These tools measure the comparative advantage or competitiveness of the province in the sectors.

The first variable to measure the comparative advantage or competitiveness of the province in a sector is the "Revealed Comparative Advantage - (RCA)". Philosophical foundation of the concept of comparative advantage was discussed for the first time in literature by Ricardo (1817)[1]. The RCA indicator which has a significant place in the international trade literature was introduced by Balassa (1965)[2]. RCA is mostly used for measuring whether a country is competitive in a certain sector compared to all other countries. In a more general definition, when all the sub-regions in a reference region are taken into account, the competitiveness of a sub-section in any sector is measured. Therefore by taking Turkey or the world as the reference region, it is possible to calculate this variable for the provinces. When used on a provincial basis, RCA is found by dividing the total share of a sector in the total exports of a province by the share of the same sector in the total exports of the world or Turkey. The interpretation of the variable on a provincial basis differs based on the reference region used. If we take the reference region as the world, when the RCA value is higher than 1 in a sector it means that the province's competitiveness in that certain sector is higher than the world average. The bigger RCA is, the higher the competitiveness is. RCA is calculated as follows, when X_{ik} is the exports of province i in the sector k, X_i is the total exports of the province i, X_{dk} is the total exports of the sector k in the world, X_d is the total exports of the world:

$$RCA_{ik} = \frac{X_{ik}}{X_i} \bigg/ \frac{X_{dk}}{X_d}$$

"Revealed Competitiveness (RC)" indicator introduced by Vollrath (1991)[3], includes the imports dimension to the competitiveness calculation. Vollrath's indicator is as the subtraction of two indicators, one calculated with exports data and other with imports data. The sub-indicator calculated by using the exports data is equal to Balassa's RCA indicator and it is referred as "Revealed Exports Advantage - (RXA)". The second sub-indicator calculated by replacing the exports data in the RCA definition by imports data is referred as "Revealed Import Advantage - (RMA)". RC is the natural logarithm of the RXA to RMA ratio. When the RC value is higher than zero it indicates that, the province has competitiveness in that sector. RC is calculated as follows, when X_{ik} is the exports of province i in the sector k, X_i is the total exports of the province i, M_{ik} is the imports of province i in sector k, M_i is the total imports of the province i:

$$RC_{ik} = In[(X_{ik}/X_i) / (M_{ik}/M_i)]$$

Although the RCA indicator is used more often in exports analysis, RC is a more suitable sectoral competitiveness indicator since it takes into account the imports dimension. When RCA is used as a competitiveness indicator, a province which re-exports in a sector might appear to be competitive although it does not have any manufacturing facilities in the mentioned sector. However, RC overcomes this problem by including the imports dimension.

Distribution of the total exports of the province by the product groups formed based on the technological contents of the products provides a macro perspective on the sectoral structure of exports and the technological intensity of this structure. Technological intensity of the province can be determined by using this tool which is based on categorizing the total exports of the province such as "resource based", "low technology", "medium technology" and "high technology". After all the exporting sectors of the province are put under these four categories, shares of these categories in the exports are calculated. In the general use of the tool, by observing the yearly evolution of the medium and high technology products' shares in exports, it is decided whether the exports of the province went through a technological or sectoral change or not.

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[1] Ricardo, D. (1817). "On the Principles of Political Economy and Taxation". John Murray, London.
[2] Balassa, B. (1965). "Trade Liberalization and Revealed Comparative Advantage". The Manchester School of Economic and Social Studies, 1965, Vol. 119, 93-123.
[3] Vollrath, T. L. (1991). "A Theoretical Evaluation of Alternative Trade Intensity Measures of Revealed Comparative Advantage". Weltwirtscaftliches Archiv, 130, 265-279.
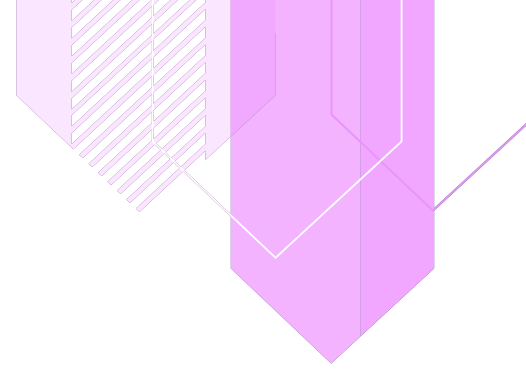
Classification of the exports by the technological contents of products can be done in various ways. The most important three of these are the classifications introduced by Leamer (1984)[4], Lall (2000)[5] and Hanson (2010)[6]. Leamer (1984) provides SITC Rev.2 classification 2 digit sectoral detail; Lall (2000) SITC Rev.2 classification 3 digit sectoral detail; and Hanson (2010) HS 96 classification 2 digit sectoral detail.

The Lall (2000) classification which covers 230 sectors, prioritises the sensitivity of classification and divides exports into five main categories and ten sub-categories. Hanson (2010) on the other hand divides exports into eight categories by putting together the products with similar factor intensity and are based on similar technological and institutional infrastructure in terms of manufacturing base. Leamer (1984) is the least preferred one among these classification types since it is old and it only covers 68 sectors.

Box 3: Sectoral View of Gaziantep's Exports

In Table 17, five sectors where Gaziantep has the highest exports which have the highest RCA and RC values are listed separately. Three tools to be used for determining the prominent sectors in exports provide different results for Gaziantep. The reason for this difference is that the exports data used does not provide adequate sectoral detail. The data used is the exports data published on TURKSTAT's website, on the chapter (HS2) level (98 sectors), on the provincial basis. It is more appropriate to use the data from the HS classification with 4 or 6 digit sectoral detail in order to identify the prominent sectors in exports. There are 1241 sectors in 4 digit detail and 5113 sectors in 6 digit detail in the HS classification. As the quantity of sectors increases, competitiveness based variables RCA and RC provide more significant results. When the Table 17 is viewed, it is seen that the most important sector in Gaziantep's exports is "Carpets and other floor covers made from weavable materials". All three variables indicate that this sector is important for Gaziantep's exports.

Table 17: Prominent Sectors in Gaziantep's Exports According to Different Indicators (2014)

Carpets and other floor covers made from weavable materials	24.1	**Share in exports (%)**
Grains, flour, starch or milk preparations; pastry products	8.2	
Plastics and their manufactured goods	8.0	
Animal and vegetable solid and liquid oils; cooking solid oils, animal and vegetable waxes	6.5	
Synthetic and artificial filaments, strips and similar synthetic and artificial materials suitable for weaving	6.1	
Miscellaneous manufactured goods (hygienic towels, diapers, pencils, lighters, zippers, brushes etc.)	35.5	**RCA**
Carpets and other floor covers made from weavable materials	16.0	
Animal and vegetable solid and liquid oils; cooking fat, animal and vegetable wax	8.6	
Padding, felt and unwoven textiles, special threads, twines, cordons, strings, ropes, and their manufactured goods	7.9	
Grains, flour, starch or milk preparations; pastry products	7.7	
Grains, flour, starch or milk preparations; pastry products	8.0	**RC**
Carpets and other floor covers made from weavable materials	7.8	
Personal objects, packed meals provided for water and air crafts (excluding fuel)	6.8	
Milling products, malt, starch, inulin, wheat gluten	6.4	
Meats and edible offal	6.4	

Source: TURKSTAT, UN Comtrade, TEPAV Calculations

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[4] Leamer, E. (1984). "Sources of International Comparative Advantage: Theory and Evidence" Cambridge, MA: MIT Press.
[5] Lall, S. (2000). "The Technological Structure and Performance of Developing Country Manufactured Exports, 1985-98". Oxford Development Studies, v.28, i.3.
[6] Hanson, G. (2010). "Sources of Export Growth in Developing Countries". University of California-San Diego.

In Table 18, according to the Hanson's (2010) sectoral classification, distribution of Gaziantep's exports is compared to the distribution of Turkey's exports. It is observed that in Gaziantep's exports, "Foods, drinks, tobacco and forest products" and "Textiles and ready-made garments" groups are prominent. These two groups constitute 71.7% of Gaziantep's exports. However, the same two groups have 26.9% share in Turkey's exports.

Table 18: Distribution of Gaziantep's and Turkey's 2014 exports to Hanson Groups (%)

	GAZİANTEP	TURKEY
Agriculture, meat, milk and sea products	2.3	5.2
Foods, drinks, tobacco and forest products	26.7	7.5
Mining	0.9	13.4
Plastic and chemicals	11.4	9.4
Textiles and ready-made garments	45.0	19.4
Iron-steel and other metals	4.9	14.0
Machines, electronics and means of transportation	3.1	27.4
Other industries	5.7	3.7

Source: TURKSTAT, Hanson (2010), TEPAV Calculations

Prominent Sectors in Exports

Table 19: Indicators and Sources Used in the Prominent Markets in Exports Analysis

INDICATOR	SOURCE
Five (ten) countries with highest exports	TURKSTAT, TIM
Trade Intensity Index (TII)	TURKSTAT, TIM, United Nations Comtrade database, World Development Indicators
Index of Export Market Penetration (IEMP)	TURKSTAT, United Nations Comtrade database, BACI database[7]
Index of Competitive Export Market Penetration	

Tools put together under this title provide information on the geographical distribution of the province's exports. The "Five (ten) countries with highest exports" among these tools only accept the exports basket as data and shows the exports partners which matter for the province. Other three tools answer the question "In which countries do the exports of the province concentrate on?"

Trade Intensity Index (TII), takes into account the importance of the two parties engaged in trade, within the world exports and imports and measures how much the exporting country concentrates on the importing market. If the index is higher than 1, it can be interpreted as there is more trade between two countries than should be, when the share of the partner country in the world trade is taken as the basis. The TII, which was used by Brown (1947)[8] for the first time, was developed and popularized by Kojima (1964)[9]. Trade Intensity Index TII_{ij} of province i in country j is calculated as follows, when X_{ij} is the exports from province i to country j, X_i is the total exports of province i, M_j is the total imports of country j, and M_d is the total imports of the world:

$$TII_{ij} = \frac{(X_{ij}/X_i)}{(M_j/M_d)}$$

[7] Gaulier, G. ve S. Zignago (2010). "BACI: International Trade Database at the Product Level The 1994-2007 Version". CEPII Working Paper 2010-23.
[8] Brown, A. J. (1947). "Applied Economics". London: George Allen and Unwin.
[9] Kojima, K. (1964). "The Pattern of International Trade among Advanced Countries". Hitotsubashi Journal of Economics, Vol. 5(1): 16-36.
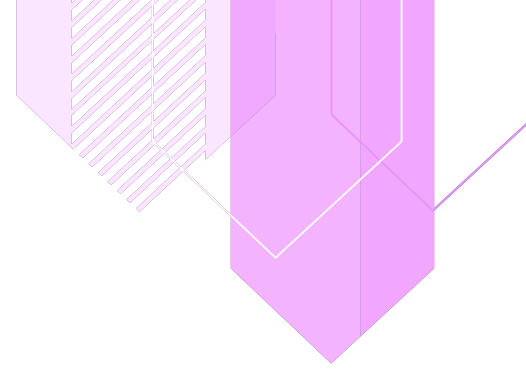
Trade intensity index is a more suitable tool for dynamic use. When the index is calculated for a static or determined time, it is used for determining the countries which the province concentrated on for the mentioned time. However, the change in the province's trade intensity with a country in time would indicate whether there is an increasing or decreasing trend in the trade between these two parties and thus more benefits can be obtained from the dynamic use of this tool.

"Index of Export Market Penetration (IEMP)" introduced by Brenton and Newfarmer (2009)[10] is another trade intensity index that can be used for determining the markets where the province is powerful. Brenton and Newfarmer (2009) count all the countries which import in the sectors where a country exports and use this value as the potential number of export relationships for the country. Ratio of country's actual number of export relationships to the number of potential relationships is referred as index of export market penetration. Market is identified as the world in the definition of the variable. Therefore, if we conduct this analysis by assuming that the province is a country, we can calculate how much the province penetrated the global market. However, this tool can be made more suitable for provinces by taking provinces as exporters and countries as markets. It might be more appropriate to show its use for the province in an example. Assume that the province A exports and country B imports 200 products. If this province A can export 100 out of these 200 products to country B, province A's penetration index to country B would be 0.5. If the province A exports all of these 200 products to country B, then the index value would be 1, meaning a full penetration.

IEMP can be superficial for measuring the market penetration of provinces, since it includes even very small trade items between two countries such as sending samples. IEMP can be superficial for measuring the market penetration of provinces, since it includes even very small trade items between two countries such as sending samples. In order to eliminate the impact of insignificant export quantities on the index, the competitiveness dimension should be added to the index. In order to calculate the Index of Competitive Export Market Penetration (ICEMP) of the province, the "bilateral revealed comparative advantage (bRCA)" which measures the comparative advantage of every sector in every market is required. bRCA, is a tool developed for this need. Competitiveness of province i in country j and sector k ($bRCA_{ijk}$) is calculated as follows when X_{ijk} is the exports of province i to country j in sector k, X_{ij} is the total exports of province i to country j, M_{jk} is the total imports of country j in sector k and M_j is the total imports of country j:

$$bRCA_{ijk} = \left. (X_{ijk}/X_{ij}) \middle/ (M_{jk}/M_j) \right.$$

If bRCA is larger than 1, it indicates a highly competitive exporting relationship. Therefore, the ratio of number of the exporting relationships with bRCA values higher than 1 to the number of potential relationships gives the Index of Competitive Export Market Penetration (ICEMP). When K_i is defined as the group of sectors where the province i exports, index of competitive export market penetration of province i to country j, RYE_{ij} is calculated as follows:

$$M_{ijk} = \begin{Bmatrix} 1 \text{ eğer } bRCA_{ijk} > 1 \\ 0 \text{ eğer } bRCA_{ijk} \leq 1 \end{Bmatrix}$$

$$Z_{jk} = \begin{Bmatrix} 1 \text{ eğer } M_{jk} > 0 \\ 0 \text{ eğer } M_{jk} \leq 0 \end{Bmatrix}$$

$$RYE_{ij} = \left. (\Sigma_j / \Sigma_{keKi} M_{ijk}) \middle/ (\Sigma_j / \Sigma_{keKi} Z_{jk}) \right.$$

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[10] Brenton, P. ve R. Newfarmer (2009). "Watching More Than the Discovery Channel to Diversify Exports" In Breaking into New Markets: Emerging Lessons for Export Diversification, eds. R. Newfarmer, W. Shaw, and P. Walkenhorst, 111-126. Washington, DC: World Bank.

Diversification of Exports

Table 20: Indicators and Sources Used in the Diversification of Exports Analysis

INDICATOR	SOURCE
Share of the ten sectors (countries) with highest exports in the total exports of the province	TURKSTAT
Hirschman–Herfindahl Index (HHI)	TURKSTAT
Theil's Entropy (TE)	TURKSTAT
Hausmann Diversification Variable	United Nations Comtrade database, TURKSTAT

Indicators under the diversity title are also addressed as disparity indicators. Sectoral diversification examines the distribution of exports by sectors, while geographical diversification examines its distribution by counties or country groups. If the disparity in these distributions is high, in other words few sectors or countries constitute most of the exports, it means that the diversification of exports is low.

When the sectoral diversification of the province is low, the decrease in the demand in the sectors where the share in exports is high, might affect the province's economy negatively. A province which sends most of its exports to a small number of sectors, is very likely to face a decrease in production, employment and exports in cases of negative global developments in these sectors. In other words, sectoral diversification is important not only for the exports of the province, but also for the stable growth of the province's economy as a whole. In order to reduce the risks stemming from lack of sectoral diversification, the provinces with low sectoral diversification should pursue sectoral diversification policies.
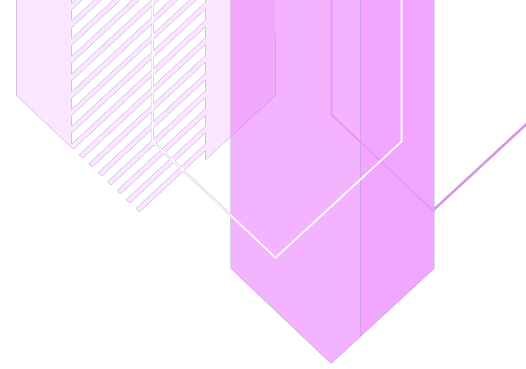
Low geographical diversification of exports means that the total exports concentrate on few countries. Geographical diversification is as important as the sectoral diversification in terms of stable growth of the province's economy. The main determinant of the exports of a province with low geographical diversity would be the economic and political performance of its main exporting partners rather than the competitiveness of the province. In order to decrease the risks that this situation would cause, the geographical diversification values on the provincial basis should be taken into account while developing the trade policy.

There is a positive relationship between the possibility of new sectors developing in the province and the sectoral diversification of the province. Different manufacturing skills used in different sectors are required for initiating manufacturing in new sectors. Since there would be no such variety of skills in a province which is dependent on one or few sectors, lack of sectoral diversification is also interpreted as the lack of diversification in skills. Therefore, sectoral diversification policies are also the policies to increase the manufacturing elasticity.

Sectoral diversification needs of provinces differ depending on their levels of development. Imbs and Wacziarg (2003)[11], determined that the countries which overcame the middle income trap have increased their sectoral diversification up to a certain level and began sectoral specialization after they reached 10,000 USD national income per capita.[12] Under the assumption that the provinces have a growth process similar to countries, sectoral specialization is thought to

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[11] Imbs, J. ve R. Wacziarg (2003). "Stages of Diversification", American Economic Review, 93(1), 63-86.
[12] In addition, Cadot et al (2011) and Bebczuk and Berrettoni (2006) found a downwards U shaped relationship between national income per capita and diversification of exports. Diversification of exports is higher in middle income or developing countries, compared to developed and undeveloped countries. While undeveloped countries suffer from a lack of diversification due to insufficiency of sources, in developed countries it is caused by specialization.

be more suitable rather than sectoral diversification for provinces which exceeded a certain level of development. For instance, it would be wrong to say that Istanbul and Mardin need sectoral diversification policies equally. While Istanbul, a province with variety of skills created by high sectoral diversification is a suitable province for sectoral specialization, same conditions may not apply to Mardin.

The first and simplest indicator to be used for measuring sectoral (geographical) diversification is the share of N sectors (countries) with highest share in the exports of a province, in the total exports and is indicated as "SÇ (CÇ)". The N value is usually used as 5 or 10. In a province with all exports to only one sector, SÇ would be equal to 1. Therefore, as the value of this variable approaches to 1, diversification decreases. Sectoral diversification of province i ($SÇ_i$) is calculated as follows, when P_{ik} is the share of sector k in total exports of province i:

$$SÇ_i = \sum_{k=1}^{N} P_{ik}$$

Geographical diversification of province i ($CÇ_i$) is calculated as follows, when p_{ik} is the share of country j in the total exports of province i:

$$CÇ_i = \sum_{k=1}^{N} P_{ik}$$

When there is no lack of sectoral or geographical diversification in the province, it does not necessarily assure that the exports of the province do not carry a risk based on the lack of diversification. When there is a lack of geographical diversification in a certain sector, it does not cause a high risk in the total exports of the province but it does for the exports in that certain sector. For instance, assume that 10% of the exports of province A comes from the sector B. If all the exports of province A in sector B are directed to country C, 10% of province A's exports are under high risk.

One of the most popular diversification variables, and also one of the most important variables in the competition literature is the Hirschman-Herfindahl Index (HHI). Although HHI is mentioned for the first time by Hirschman (1945)[13]; since the same index is also used by Herfindahl (1950)[14] without being aware of the index, it carries the names of both academicians. It is possible to measure both sectoral and geographical diversification by using this indicator. When used for geographical diversification, the index is the sum of squares of the shares of countries in the total exports of the province. While HHI can get 1 as the maximum value, diversification increases as it approaches zero. As the share of sector k in the total exports of province i is depicted as P_{ik}, the index is calculated as follows:

$$HHE_i = \sum_{k} P_{ik}^2$$

In contrast with the first two diversification indicators, as Theil's Entropy (TE) indicator increases, diversification also increases. As the share of sector k in the total exports of province i is depicted as P_{ik}, TE is calculated as follows:

$$TE_i = -\sum_{k} P_{ik} * \log(P_{ik})$$

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[13] Hirschman, A. (1945). "National Power and the Structure of Foreign Trade", University of California Press, 155-62.
[14] Herfindahl, O (1950). "Concentration in the Steel Industry", Doctoral thesis.

The only variable among the tools used for measuring sectoral diversification that takes into account the sectoral competitiveness is the "Diversification (Div)" variable introduced by Hidalgo and Hausmann (2009)[15]. Based on his recent contributions to international trade literature and being one of the academicians who developed the variable, we deemed it appropriate to translate this variable to Turkish as "Hausmann Çeşitlilik Değişkeni (Hausmann Diversification Variable)". Div is the number of sectors of the province with a RCA value higher than 1. An increase in the value of the variable means that the province has been diversified in a competitive manner compared to other economies in the reference region. It is discussed in Box 4 that Div provides more sensitive results compared to HHI for sectoral diversification of provinces. Div is calculated as follows:

$$M_{ik} = \begin{cases} 1 \text{ eğer } RCA_{ik} > 1 \\ 0 \text{ eğer } RCA_{ik} \leq 1 \end{cases}$$

$$Div_i = \sum_k M_{ik}$$

Box 4: Comparing Gaziantep to Other Provinces Based on Sectoral Diversification of Exports

Figure 14 and Figure 15, show the results of two different diversification indicators for Gaziantep, İstanbul, Mardin and Şanlıurfa. As Hirschman-Herfindahl index decreases, diversification increases; while in Hausmann index, diversification also increases as the value increases. According to both indices, İstanbul has the highest diversification in exports among these four provinces, while Şanlıurfa and Mardin have the lowest. However when İstanbul and Gaziantep are compared, two variables show different results. While Gaziantep has a diversification level close to İstanbul according to HHI scores, it remains considerably behind İstanbul according to Hausmann index scores, which includes competitiveness. It indicates that in 2010, Gaziantep exported competitively in 70 out of 774 sectors in SITC Rev 2, 4 digit product classification, while İstanbul exported competitively in 332 sectors (RCA > 1).

Figure 14: Hirschman-Herfindahl Index Values of Gaziantep, Istanbul, Mardin and Şanlıurfa (2004 and 2014)
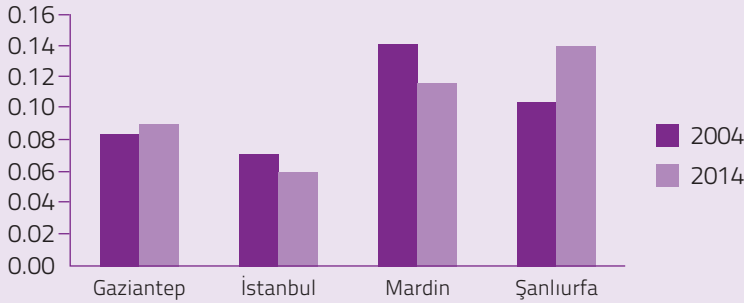
Source: TURKSTAT, TEPAV Calculations

Figure 15: Hausmann Diversification Index Values of Gaziantep, Istanbul, Mardin and Şanlıurfa (2010)
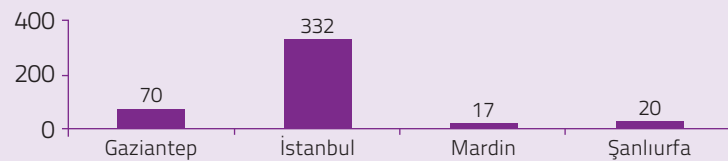
Source: TURKSTAT, UN Comtrade, TEPAV Calculations

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[15] Hidalgo, C., R. Hausmann (2009). "The Building Blocks of Economic Complexity". PNAS, 106:26, 10570-575.
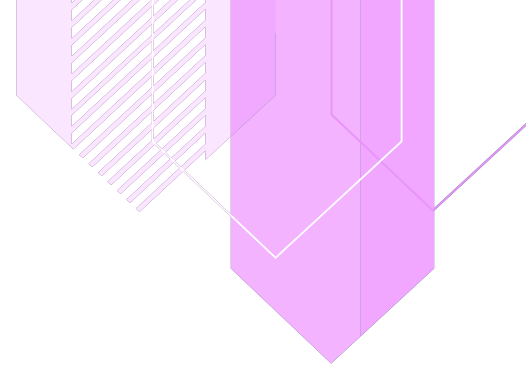
Production Structure Analysis

Prominent Sectors in Employment

Table 21: Indicators and Sources Used in Prominent Sectors in Employment Analysis

INDICATOR	SOURCE
Five (ten) sectors with highest level of employment	SGK, (Employment data recorded in NACE Rev.2 classification, 2 digit sectoral detail)
Location Quotient (LQ)	SGK, (Employment data recorded in NACE Rev.2 classification, 4 digit sectoral detail)

As laid down in the introduction part, both exports data and employment data can be used for production structure analysis. As it is obvious in the name of the analysis, the purpose is to discover findings on the production patterns and dynamics of provinces. However, since most of the tools used require country level data and there are no production data on either provincial or country level with a detailed sectoral distinction; export or employment data is used instead of production data (by proxy).

Tools used in production analysis have entered the international trade and development literature with nation-wide or multinational works where exports data were used. However, it was determined that, for works on provincial basis, employment data provides more reliable results compared to exports data. Since the tools which can also work with employment data will be introduced hereinafter, it would be a transition point between exports data and employment data to begin the production structure analysis with two tools that will help us know more about the sectoral structure of the provincial economy by only using employment data.

The simplest tool to be used for determining the prominent sectors in employment is to list the five (ten) sectors with highest level of employment in the province. However, it is not as easy to prepare this list as listing the prominent sectors in exports. Since export data is kept according to the tradeable product classifications, all products or sectors can be included in the list. On the other hand, since employment data is kept according to activity type classifications, various service activities can also be included in the list. For instance, the sector with the highest level of employment in a province can be "primary schools" sector. It would not be an accurate conclusion to say, if primary school teachers are employed the most in this province, the industry is not quite developed. The reason for such a situation could be that the fertility rate or the child population is rather high in this province. Such a deduction would be inadequate for having an opinion on the production structure of the province. In order to avoid such cases, it may be useful to keep some sectors out of the analysis when working with employment data. Employment data in Turkey are kept in NACE classification. In this classification, Group A includes agriculture, forestry and fishing sectors; Group B includes mining and quarrying sectors; and Group C includes manufacturing sectors. It would be sufficient to include only these three groups in order to have information about the production structure of the province. If only the manufacturing industry structure of the province is desired to be focused on, then it would be sufficient to use only the sectors in Group C.

The variable to be used for finding out in which sectors a province has comparative advantage or which sectors are the traditional sectors of the province is the "Location Quotient (LQ)". LQ, developed by Haig (1926)[16] for measuring the locational concentration of the manufacturing industry in New York, was translated to Turkish as "Yerellik Katsayısı (Location Quotient)" or "Yerelleşme Katsayısı (Localization Quotient)". RCA and LQ are calculated with a similar method, but RCA is based on exports data while LQ is based on employment data. Since it is not possible to find employment data with the same sectoral distinction for all countries in the world, Turkey is used as the reference region and provinces

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[16] Haig, R. M. (1926). "Towards an Understanding of Metropolis". Quarterly Journal of Economics, 40:1, 402-34.

or districts are used as sub-regions in the LQ calculation. When the LQ value is higher than 1 for a province, it means that the share of this sector in the total employment of the province is higher than its share in the total employment of the country. In other words, this sector is regarded as a traditional, localized sector for this province. LQ is calculated as follows, when E_{ik} is the employment in sector k in province i, E_t is the total employment in province i, E_{Tk} is the total employment in Turkey in sector k and E_T is the total employment in Turkey:

$$LQ_{ik}=(E_{ik}/E_t)/(E_{tk}/E_T)$$

Quality of Production

Table 22: Indicators and Sources Used in Quality of Production Analysis

INDICATOR	SOURCE
Ubiquity	If employment data will be used, then required data for LQ, and if exports data will be used, then required data for RCA calculation shall be used.
Average Ubiquity	
PRODY	If exports data will be used, then in addition to calculated RCA variable, countries' GDP data (SGP, 2005 international dollar) from World Development Indicators shall also be used. Of employment data will be used, then in addition to calculated LQ variable, provinces' or regions' value added tax per capita data from TURKSTAT shall also be used.
EXPY	

Products exported by rich provinces and countries usually have high added value and quality. A province desiring to reach the same level of national income per capita as rich provinces, should get to the same level to be able to export the products exported by rich provinces. To that end, existing quality of provinces' exports is analysed, and the distance to the desired level is discovered.

Provinces with higher average quality levels of production will get richer faster. Hausmann, Hwang and Rodrik (2006)[17], demonstrated that there is a positive and strong relationship between country's average quality and national income per capita. Under the assumption that a sector with a higher quality compared to other sectors would also generate higher added value, it can also be assumed that the relationship between economic growth and quality also applies to provinces. Therefore, the provinces which cannot improve their average quality are thought to have troubles in growth in the long term. Given the impact of production structure on growth, improving average quality of provinces is a policy priority.

In order to determine the average quality of a province's production structure, first the tools to measure the quality of sectors are needed. Ubiquity and PRODY are the tools which measure the quality of sectors. The tools which provide the average quality values for the province by using these tools are Average Ubiquity and EXPY. These quality tools which were used with exports data for countries in the original works they were introduced in, were adapted for this chapter for provincial basis analysis and use of employment data.

When there is a high number of countries with competitive production in a sector, it indicates that this sector is ubiquitous. The skills required to produce in such a sector are the type that can be found in any country. Thus, there are few countries that possess the skills required to produce in a sector with high quality. For instance, the skills required in bread making sector are not the same as the ones required for manufacturing jet engines. Since the skills required to manufacture jet engines are more complex than the ones required in the bread making sector, there are rather few countries which can produce competitively in the jet engine sector, while almost all countries can produce in the bread

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[17] Hausmann, R., J. Hwang ve D. Rodrik (2006). "What You Export Matters". CEPR Discussion Papers 5444, Centre for Economic Policy and Research, London.
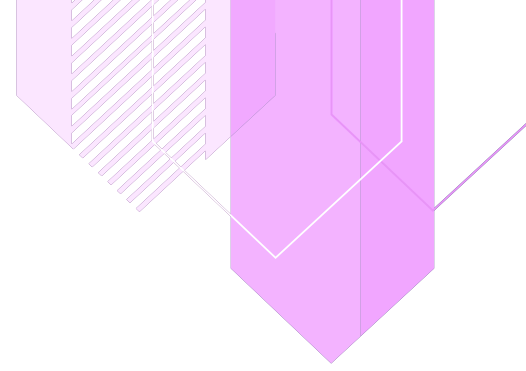
making sector. The "Ubiquity (Ubiq)" variable based on this idea and introduced by Hidalgo and Hausmann (2009) is the number of countries which export in the sector, with a RCA value higher than 1. As the ubiquity value of the sector increases, its quality decreases. Ubiq, which can be translated to Turkish as "Sıradanlık (Ubiquity)" is calculated as follows:

$$M_{ik} = \left\{ \begin{matrix} 1 \text{ eğer } RCA_{ik} > 1 \\ 0 \text{ eğer } RCA_{ik} \leq 1 \end{matrix} \right\}$$

$$\text{Ubiq}_k = \sum_k M_{ik}$$

When it is desired to calculate Ubiq by using provincial basis employment data, LQ can be used instead of RCA. In such a case, Ubiq is calculated as follows:

$$m_{ik} = \left\{ \begin{matrix} 1 \text{ eğer } LQ_{ik} > 1 \\ 0 \text{ eğer } LQ_{ik} \leq 1 \end{matrix} \right\}$$

$$\text{Ubiq}_k = \sum_i M_{ik}$$

The variable which measures average ubiquity for the province based on Ubiq variable is called "Average Ubiquity (Avg_ubiq)". The lower the ubiquity of the sectors where the province makes production competitively, the higher the average quality of the province is expected to be. Average ubiquity variable is the arithmetic mean of the Ubiq values of the sectors where the province exports competitively. In other words, average ubiquity is the sum of ubiquities of the sectors where the province exports competitively, divided by the Div score of the province. Avg_ubiq, which can be translated to Turkish as "Ortalama Sıradanlık (Average Ubiquity) " is calculated as follows:

$$M_{ik} = \left\{ \begin{matrix} 1 \text{ eğer } RCA_{ik} > 1 \\ 0 \text{ eğer } RCA_{ik} \leq 1 \end{matrix} \right\}$$

$$\text{Avg\_ubiq}_i = \frac{1}{\text{Div}_i} \sum_k M_{ik} * \text{Ubiq}_k$$

Hausmann, Hwang and Rodrik (2006) have developed a variable for measuring the quality of sectors, which takes into account the national income per capita of countries and is called as "PRODY". PRODY is a variable which measures the richness in a sector or relative technological contents of a sector. If we use the jet engine and bread making sectors as examples again, jet engine sector's PRODY value should be higher than the bread making sector's value. The jet engine sector is a sector in which only rich countries can produce competitively, while bread making sector is a sector in which countries from various income categories can produce competitively. Therefore, jet engine sector is a more technology intensive or richer sector compared to bread making sector. PRODY value of a sector is the sum of national income per capita data of the countries exporting in the sector, weighted by RCA values of the countries in that sector. PRODY is calculated as follows, when X_{ik} is the exports of country i in sector k, X_i is total exports of country i and Y_i is national income per capita of country i:

$$\text{PRODY}_k = \sum_i \frac{\left(\frac{X_{ik}}{X_i} \right)}{\sum_i \frac{X_{ik}}{X_i}} Y_i$$

PRODY values calculated by using exports data of countries can be regarded as valid for provinces as well, but it is more appropriate to calculate PRODY separately for provinces. When they are considered as an economic system, there are purpose and size differences between provinces and countries. While countries aim to get integrated into global value chains or reach the developed country status, provinces mostly aim to be the prominent province in their country. And the fact that countries are bigger than provinces country-wise is obvious only with some exceptions.

Provided that Turkey is the reference region, exports data and national income per capita data of 81 provinces are

required for calculating PRODY with provincial data. Since GDP values of provinces have not been calculated after 2001, it is not possible to calculate PRODY on a provincial basis to represent the qualities of sectors under today's conditions. Therefore, NUTS level 2 regions' added value per capita data of 2011 is used. Provincial exports data published by TURKSTAT is based on the addresses of headquarters of firms, thus it does not demonstrate the exports of provinces completely. In order to solve this problem, employment data can be used instead of exports data in PRODY calculation done with regional data.

"EXPY" which can be used for measuring the average quality of a country's economy, is the sum of the PRODY values of the sectors in the exports basket of the country, weighted by their shares in the total exports of the country. EXPY can be thought as the national income content in the country's production. Hausmann, Hwang and Rodrik (2006) demonstrated that countries with high EXPY values will have higher growth rates. EXPY is calculated as follows, when X_{ik} is the exports of province i in sector k, X_i is the total exports of province i:

$$EXPY_i = \sum_{k} \left(\frac{X_{ik}}{X_i} \right) * PRODY_k$$

While calculating the EXPY value of a province, attention should be paid to how the PRODY variable was calculated. If the employment data was used in PRODY calculation, then it is weighted by the shares of sectors in the total employment of the province.

Product Space and Ability to Leap

Table 23: Indicators and Sources Used in Product Space Analysis

INDICATOR	SOURCE
Proximity between sectors-Proximity	All tools under this title can be calculated by using both employment and exports data. If employment data will be used, provincial basis employment data recorded in NACE Rev. 2 classification 4 digit sectoral detail and added value per capita data of the provinces or regions are required. SGK publishes these employment data in 2 digits. If exports data will be used, SITC classification 4 digit or HS classification 6 digit sectoral classification country based exports data, provinces' exports data in the same classification and countries' national income per capita data are required. These data can be accessed on United Nations Comtrade database, TURKSTAT and World Development Indicators. However, provincial basis exports data acquired from TURKSTAT are only 2 digit on the province level.
Proximity to the sector - Density	
Open Forest	
Place of the province on the product space	
Place of the province in the strategy matrix	

Tools in this group make it possible to determine the products towards the production and export of which the province can leap by its existing production structure. The existing production structure of a province is an indicator of the inputs or production skills of that province. Variables such as Proximity, Density and Open Forest analyse the production skills of the province and demonstrate in which directions the province can leap.

In order to calculate how distant a province is to produce competitively in a sector with its existing production skills, first it should be known how proximate the sectors are in terms of the production skills they use. This way of thinking is similar to requiring the quality values of sectors in order to calculate the average quality of the province. Proximity, which was designed to meet this need, measures the proximity between sectors. Density, which is calculated by using Proximity values, is a tool that shows how distant the provinces are to produce competitively in the sectors.

It is more likely that the sectors which require similar production skills coexist in an economy competitively. For
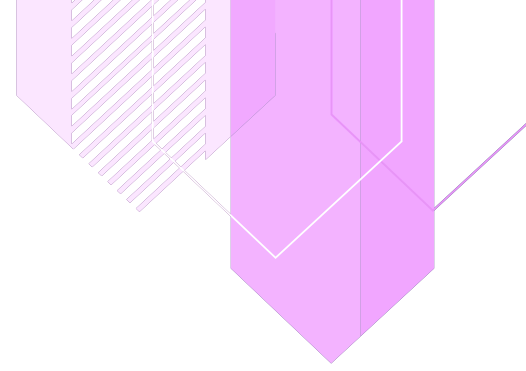
instance, since television manufacturing and computer monitor manufacturing require similar skills, it is expected that in a province where there is manufacturing of television, there would also be computer monitor manufacturing. On the other hand, the situation is different for a sector which is dependent on natural resources such as petrol and shares very little common production skills with other sectors. "Proximity ( )" variable by Hausmann and Klinger (2006)[17] measures the proximity between two sectors, based on the assumption that when the competitiveness is high in one of two sectors which require similar production skills then the other one may also have high competitiveness. In a more technical expression, Proximity measures the possibility of a country which exports with high competitiveness in a sector to also export with high competitiveness in another sector. As this possibility increases, the proximity between the sectors also increases. This tool can be translated into Turkish as "Sektörler arası yakınlık (Proximity between sectors)". Proximity is calculated as follows, when i represents the country and k and l represent the sectors:

$$M_{ik} = \begin{cases} 1 \text{ eğer } RCA_{ik} > 1 \\ 0 \text{ eğer } RCA_{ik} \leq 1 \end{cases}$$

$$\varphi_{kl} = \min\{P(M_k|M_l), P(M_l|M_k)\}$$

By using the competitiveness of a country in a sector it already makes production and the proximity between sectors, the possibility of the country to export with high competitiveness in any sector can be calculated. This variable, which is called "Density (ω)" and also introduced by Hausmann and Klinger (2006), measures the proximity of a country to a sector by using Proximity and RCA variables. Although Density means intensity, it could be more appropriate to translate it to Turkish as "Sektöre olan yakınlık (Proximity to the sector)". Density is calculated as follows, when k' represents all other sectors besides sector k:

$$M_{ik} = \begin{cases} 1 \text{ eğer } RCA_{ik} > 1 \\ 0 \text{ eğer } RCA_{ik} \leq 1 \end{cases}$$

$$\omega_{kl} = \frac{\Sigma_k \varphi_{kk} \star M_{ik}}{\Sigma_k \varphi_{kk}}$$

For an analysis on the provincial basis, Proximity and Density tools are calculated by using LQ instead of RC and provinces instead of countries. Therefore, since the proximity between sectors is based on the production structures of provinces, it does not apply to the global economy. For instance, a province which produces competitively in the synthetic threads sector may not be able to produce competitively in the ready-made garments sector due to the employment capacity of the province. However, the neighbouring province which fulfils its need for synthetic threads from this province may produce competitively in the ready-made garments sector. In that case, on the provincial basis, its potential to produce competitively in both synthetic threads sector and ready-made garments sector might appear to be low. However, when it is considered on the country basis, since the sum of economic structures of provinces constitute the whole country economy, country's potential to produce competitively in both synthetic threads sector and ready-made garments sector would appear to be high.

The quality of the new sectoral structure to which a country can transform from its existing sectoral structure depends on both the sectors it produces in and its competitiveness in these sectors. "Open Forest (OP)" variable introduced by Hausmann and Klinger (2006) calculates the average quality of the sectoral structure to which the country can transform, by taking into account the proximity of the sectors where the country is competitive in to other sectors and the quality of these sectors. In other words, Open Forest is a variable which is obtained by synthesizing the quality and proximity variables which indicates the possible level of quality in the future. Therefore, a province with a high Open Forest value is expected to gain a high level of increase in its average quality of production and income. This variable can be translated into Turkish as "Açık Orman (Open Forest)" or "Genişleme Sahası (Expansion Field)". Open Forest is calculated as follows, when i represents the country and k and l represent different sectors:

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[17] Hausmann, R. ve B. Klinger (2006). "Structural Transformation and Patterns of Comperative Advantage in the Product Space", Center for International Development, Harvard University, Working Paper No.128.

The Open Forest, which is obtained by synthesizing various variables, provides results for provinces when its variables, which are its components, are calculated with provincial data. Since provincial basis data is used, both the sectoral structure to which the province can transform and the quality of this structure are determined by the existing production structure in 81 provinces of Turkey and the richness of these provinces.

$$OF_i = \sum_k \sum_l \left[\frac{\varphi_{kl}}{\Sigma_k \varphi_{kl}} (1-M_{il})M_{ik}Prody_l \right]$$

By using the "Product Space" where all global relationships among tradeable products are demonstrated on a single map, it is possible to see on which sectors the province concentrates and in which sectors it can leap. In Figure 16 the empty version of the Product Space is provided. Every dot depicted in different colours represents a sector. Colours show the upper sector groups to which the sectors belong. For instance, the green dots represent the ready-made garment sectors. Dots are connected to each other by connection lines of four different colours. The colour of the connection line represents the proximity between the two sectors. This proximity is measured by using the Proximity variable. For instance, the connection line between two sectors is red if the Proximity value is higher than 0.65 and blue if it is lower than 0.4. The area covered in dots represents the global trade volumes of sectors. The higher the global trade of the sector is, the bigger the area it covers on the map becomes. The sectors where the province has high competitiveness are shown by black squares on the empty map.

The sectors in the centre of the Product Space are the ones which have more connections with other sectors. In other words, there are more sectors proximate to a province which concentrates on the centre. Therefore it is easier for a province which concentrates on the centre to have a sectoral transformation compared to the ones which concentrate on the surrounding areas. It is recommended for provinces to concentrate towards the centre of the Product Space in order to both improve their quality and facilitate their sectoral transformation.

Figure 16: Product Space
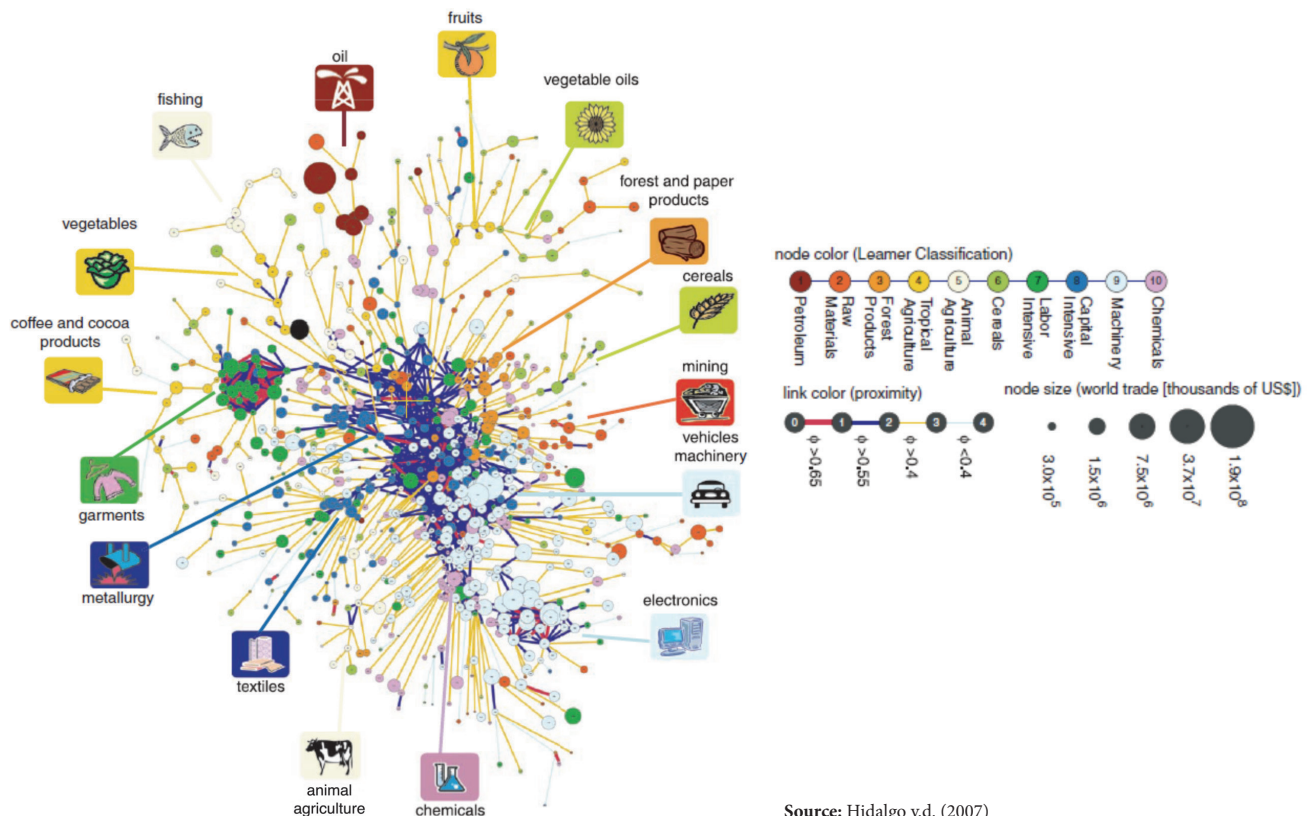
Source: Hidalgo v.d. (2007)

The graph which divides provinces into four groups based on the logarithm of their "Open Forest" scores and logarithm of their EXPY values is called "strategy matrix". In the strategy matrix, average ubiquity variable can also be used instead of EXPY. However since EXPY and average ubiquity are inverse variables, the areas in the matrix are changes in such a use.

Given that provinces with different production structures and abilities to leap would also have different development priorities, the strategy matrix divides provinces into four groups based on the industrial policies they need. Directive policies are not required for provinces which already have high average quality and also high quality sectors in their expansion fields. Because, the provinces in this group will continue to produce with high quality in whichever direction they pursue in the financial sense. Provinces with low existing quality but have high quality sectors in their expansion fields will need directive policies. Because, the provinces in this group are not able to use their potential to leap to the high quality sectors. It is possible to improve the average quality of these provinces by the help of directive policies. The provinces with high existing quality but do not have high quality sectors in their expansion fields are the provinces which may be called as niche and where the sectors which are not really connected to other sectors have developed, although their level of quality is adequately high. Since the probability of these countries to have high quality leaps is low, it might be an appropriate policy to support them to increase their competitiveness in their established sectors. The provinces with both low existing quality and low probability to have a high quality leap are the provinces that do not possess adequate skills to produce. Capacity should be built in these provinces first in order to accelerate the production activities.

Box 5: Five Most Proximate Sectors to Gaziantep and Istanbul

In Table 24, the five sectors with highest Density values among the non-localized sectors of Istanbul and Gaziantep are presented. The first thing to catch the eye in the Table 24 is that Istanbul's Density values are higher than Gaziantep's Density values. The fact that Istanbul has more localized sectors compared to Gaziantep causes a relative richness in production skills in Istanbul. Since the probability of the development of a new sector is higher in a province with more production skills, Istanbul's Density values are higher that Gaziantep.

Table 24: Five Sectors with the Highest Density Values in Gaziantep and Istanbul (2011)

		Density
İstanbul	Preparing and spinning natural and synthetic flax fibre	0.56
	Inner tube and tyre production; putting tread on tyre and reprocessing	0.48
	Fiberglass manufacturing	0.48
	Manufacture of household items, medical materials and toilet items made out of paper	0.47
	Manufacture of machines used in paper and cardboard production	0.47
Gaziantep	Manufacture of other building woodwork and carpentry products	0.27
	Manufacture of rusk biscuits and biscuits, durable pastry goods and durable cakes	0.27
	Manufacture of ready-made feed for farm animals	0.27
	Manufacture of coke furnace products	0.27
	Tanning and processing leather; processing and dying fur	0.27

Source: SGK 2012 December data, NACE Rev.2, 4 digits, TEPAV Calculations

Secondly, it is observed that one of the five sectors Gaziantep is prominent to be included in the textiles and ready-made garments group. Given that Gaziantep's prominent sectors are also included in this group, it can be concluded that the skills in the province are specialized in manufacturing textiles and ready-made garments sectors.

Box 6: Gaziantep's and Istanbul's Location on the Product Space

Figure 17 shows the locations of Gaziantep and Istanbul on the product space in 2010. Black dots represent the sectors where the provinces export competitively (RCA > 1). Size of the dots identify the exports the province makes in the sector. Province's exports in the sector is directly proportional to the size of the black dot on the map which represents the sector. It attracts attention that Istanbul is spread on a very large area compared to Gaziantep on the space. The reason for this situation is that Istanbul has more diversified exports compared to Gaziantep. As indicated in Figure 17, while Istanbul exports competitively in 332 of the sectors on the map, Gaziantep only exports in 70 sectors. Gaziantep's location on the product space is not easily recognizable, due to its low number of sectors, different upper groups in which its sectors belong (lack of clustering) and its low level of exports in these sectors.
The most advantageous location on the map is the centre, because the sectors in the centre are the ones with the highest number of connections. Since transition is fairly easy to other sectors from the sectors in the centre; when the province is located on the centre of the map, it indicates that its elasticity in production is high. Therefore, the right strategy for Istanbul, which has an adequate level of area covered on the space, is to concentrate on the sectors on the centre of the map, while Gaziantep, which has not covered an adequate area on the space, needs to gain competitiveness in new sectors in order to expand the area it covers.

Figure 17: Product Space Map of Gaziantep and Istanbul (2010)
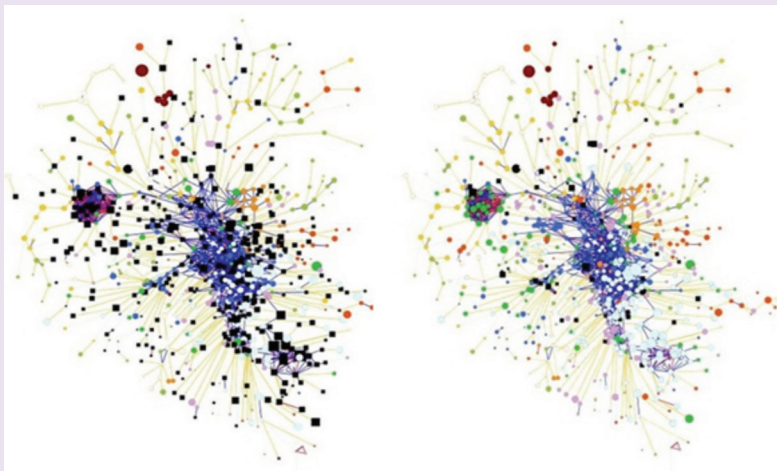
Source: UN Comtrade, World Development Indicators, Hidalgo et al. (2007), TURKSTAT, TEPAV Calculations

Box 7: Positions of Provinces on the Strategy Matrices Drawn by Using Exports and Employment Data

Figure 18, shows the positions of Gaziantep, Istanbul, Kırıkkale and Siirt on the strategy matrix.

Due to its low sophistication and high expansion field, Gaziantep needs policies to support it to export new and more sophisticated products. For Gaziantep, which has the opportunity to produce in sectors proximate to its existing sectors and increase its diversification, it is important to switch to more sophisticated sectors than its own existing sectors while increasing its diversification.

Since Siirt has low values in terms of both sophistication and expansion field, it does not have much area to move. Such provinces need a versatile state support to increase their production and exports capacity. Although Kırıkkale's sophistication is at a satisfactory level, the fact that the expansion field is narrow shows that exports are done in the right sectors but sectors have trouble in creating the skills to facilitate the transition to other sectors. Policies are needed to increase the competitiveness in existing sectors for Kırıkkale's development.

Finally, since Istanbul is successful in both areas, province's economy can easily have a transformation in any direction by using these advantages. As stated in the interpretation of Figure 17, provinces like Istanbul which have the opportunity to expand either way, can have financial transformations in a manner to achieve specialization in the centre of the product space via new generation investment incentives.

Figure 18: Positions of Gaziantep, Istanbul and Siirt on the Strategy Matrix
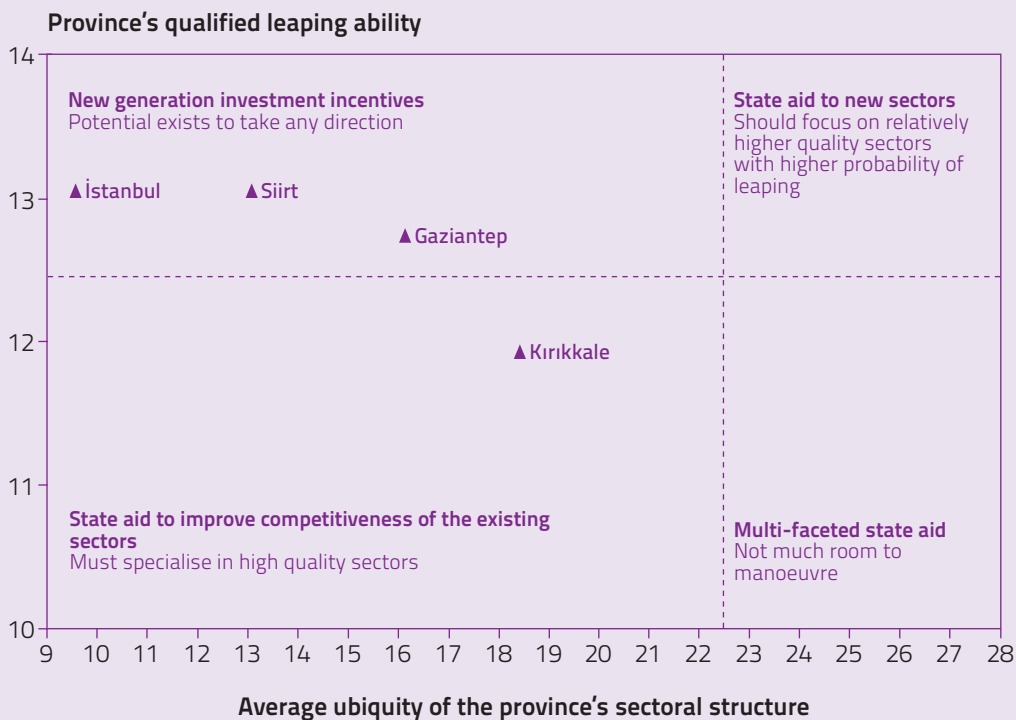
Source: SGK 2012, NACE Rev.2, 4 digits, TEPAV Calculations

Background Studies and Assessment

Analyses in this section provide information on the existing state of exports and production structure of a province and can be used for determining the possible production structures to which the province's economy transform. A province or a region should first know itself before creating its competitiveness agenda. That is why indicators presented for determining the existing state are important. Secondly, while designing regional development policies, having information on the development routes of the province or region would make the analyses easier. Therefore, indicators providing information about the future are addressed as good helpers for policy design. While indicators presented as parts of the analysis can be used independently, an ideal implementation process for exports performance and production structure analysis is given in Figure 19.

Figure 19: Steps of Exports/Production Structure Performance Analysis

STEP 1	STEP 2	STEP 3
Establish the existing state of exports/production structure	**Identify the potential development of exports/ production structure**	**Assessments for future**
1. Determinations regarding the growth of production structure/ exports	1. Identifying the development axis of exports	1. Identifying the direction for increasing exports and improving its quality in the existing state
2. Determinations regarding the diversification of production structure/exports	2. Calculating the position of the product on the product space and strategy matrix	2. Making determinations for sectors which can potentially leap
3. Determinations on the quality of production structure/exports		

Conducting the following background studies will contribute to deepen the findings to be obtained from the exports performance and production structure analyses and to enrich the competitiveness agenda.

- Works for regional industry strategy: Value chain, scenario and foresight analyses and vision works can be conducted for the prominent sectors in the region.
- Activities can be designed based on the findings from the competitiveness analysis of sectors: Activities such as company matching, networking and internationalization programs can be addressed in this scope.
- Feasibility studies can be conducted for the activities predicted to have a positive contribution in competitiveness.

3. VALUE CHAIN
ANALYSIS

3. VALUE CHAIN ANALYSIS

Table 25: Value Chain Analysis Summary Table

Purpose of Use	1. Conducting value creating process analyses and identifying problematic areas in final products/sectors to be selected 2. Prioritizing these problems and identifying the areas to develop programs and policies in this direction
User Profile	Experts from the fields of Economics-Business Administration/Engineering (capable of conducting sectoral analysis)
Method	Process and performance (cost structure, productivity, quality etc.) analyses, identifying the factors affecting these analyses, benchmarking interviews
Potential Outputs	1. Value chain map from inputs to the final output 2. Identifying the strengths and weaknesses of the chain and the factors affecting them 3. Prioritizing constraints and policy recommendations
Relevant Entities and Stakeholders	Sector Associations, Clustering Managers, Development Agencies, Public Entities, Producers, Universities, Chambers of Commerce and Industry and End Users/Consumers
Critical Issues	1. Selecting the final products critically important for the development of the region and identifying the rings of the value chain accurately 2. Finding examples from outside the region for comparing (If possible, comparing Turkey and other countries in the same sector) 3. Challenges which may be faced during the data collection stage

Value chain analysis is one of the first tools required for identifying the obstacles to regional competitiveness and preparing policies in this direction. This tool examines the relationships and connections between suppliers, producers, sellers and many other intermediary actors during the process of creating a final product. While doing this, in addition to the supply chain or production network analyses which examine the relationships between firms or within firms; it also involves exploring the impact of various factors such as transportation, infrastructure and policies about the processes which create value on the competitiveness and growth of the relevant sector and region. Thus it analyzes all economic, political and social factors which are influential in all stages of the production and marketing of a product and it makes the constraining factors visible. Also, it contributes to identifying and prioritizing the bottlenecks encountered in all the processes from the production to the marketing of a product and creating the policies and strategies to overcome these bottlenecks. In conclusion, the value chain analysis, which identifies the competitiveness capacity of a product or a sub-sector and the steps to take for increasing this capacity, is an effective tool for understanding and improving the regional competition level. Therefore, value chain analysis is used in development analyses in an increasing trend. For instance, World Bank uses the value chain analysis considerably in order to assess and develop the investment climate. In fact, a significant part of the Cambodia Investment Climate Assessment Report was comprised of the value chain analysis; and it notably contributed in the development of growth and competition strategies of Bangladesh, Kenya and Pakistan.

Value chain analysis consists of three main steps. First one is to mapping, where all stages of the sector's value chain are visualized. In this step, the stages of a product from raw materials to the end user and the actors who take role in these stages are identified. Second step is assessing the performance of all stages, conducting national/international benchmarking and determining the performance deficiencies of various stages in comparison with other regions

and countries. Third step is identifying the constraints which caused these performance deficiencies, prioritizing the constraints which affect competitiveness the most and developing programs and policies against these constraints.

Figure 20: Steps of Value Chain Analysis

	STEP 1	STEP 2	STEP 3	
	Mapping the value chain	**Performance measurement of the stages of the value chain**	**Analysing and prioritizing performance deficiencies and developing policy recommendations**	**Moving forward the value chain analysis**
Sector Selection / **Market Analysis**	1. Identifying the stages of the value chain	1. Performance measurement of every stage by using various indicators (cost, time, productivity, added value)	1. Identifying the factors causing the performance deficiencies	1. Linking it to other sections of the toolkit
	2. Identifying the actors effective in the stages of the value chain	2. Benchmarking the performance of every stage to a region, country or best examples	2. Prioritizing the performance deficiencies - Impact it created –Potential to be implemented	2. Verifying the outputs of the analysis 3. Examining temporary and external factors 4. Identifying critical sectors and the advantage of the region in these
	3. Determining the market and distribution channels of the products of the sector	3. Identifying the bottlenecks as a result of the benchmarking	3. Developing policy and program recommendations in line with the priorities identified	5. Feasibility and impact analysis of the recommendations

Before the value chain analysis, it is very important with regard to regional competitiveness to select the product or sub-sector to analyze. Conducting the value chain analysis in sectors where competition level of the region is high or supposed to be high would ensure that the constraints in these sectors are identified and programs are developed against them. Therefore, competitiveness of these sectors will increase and this will contribute in a positive way in the competition level of the region. Hence, while selecting the sector for the analysis, indicators such as economic contribution to the region, potential for growth, potential to attract investments, potential to create employment, local added value it creates, its impact on the other programs in the region, capacity to fight poverty, potential and easiness of conducting the analysis are used.

It is beneficial to conduct a general market analysis about the sector to be analyzed before the rings of the chain are examined. A general view on the region's position in national and global sectors and its competitiveness is obtained with this analysis. Many indicators are examined at this point such as global trends regarding the sector, main suppliers
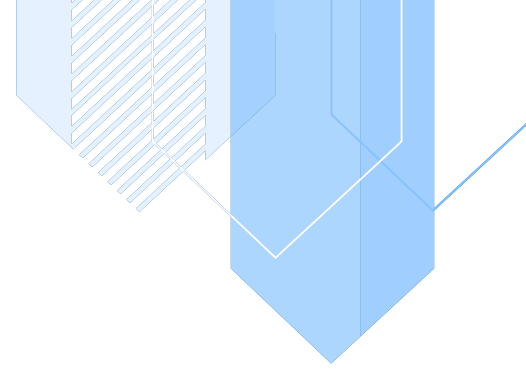
and producers on the global level, domestic and foreign investments in the sector, position of this sector in the region's economy, region's share in the sector on the national level, countries exporting and importing these products, consumer perceptions on the countries exporting these products, sizes of the firms in the local and national product market, firm's location (Organized Industrial District, city centre etc.) and consumer profile; and the local, national and global market structure of the product or sector is discovered.

Mapping the Value Chain

Visualization of all the actors, activities, organizations and the relationships between these parties constitutes the step of mapping. During the mapping, which is the first step of the analysis, production and marketing steps of the product in the selected sector and the activities and actors influential on these steps are identified. Thus a summary table is formed about the value chain and the sector.

Mapping of the value chain consists of three main stages. First, production and marketing stages of the product in the selected sector and the main activities which constitute the chain are identified and depicted as a visual figure based on the order of the stages. While these activities can be analyzed from the end product towards the raw materials, they can also be analyzed from the raw materials towards the end product. Then, all the inputs, activities carried out, actors and regulations are identified for all stages and the obtained information are recorded in the relevant stage on the figure. While activities are comprised of many activities such as supply, production and activities required for legal regulations; actors are mostly comprised of firms (raw material suppliers, production firms, transportation firms, sales firms etc.), public entities (law makers, the ones executing the relevant regulations etc.) and associations and relevant non-governmental organizations (producers' associations etc.). At the last stage of the value chain mapping, distribution and sales channels where the products are marketed are identified and listed.

Various indicators are used while creating the value chain; some can be obtained from existing data sources while others are newly created. First, in order to understand the stages of the chain, secondary sources (previously done studies about the sector, studies about the region's economy, statistics regarding the sector and the region etc.) are analyzed. After this, face-to-face interviews and focus group discussions are carried out with local actors in order to verify the accuracy of these studies and also include the information which went unnoticed. While doing these, there is a risk that the impact of national or global actors and activities might be overlooked due to an extra emphasis on the local actors since it is easier to access them. Therefore, it is important to also include these groups while determining the actors.

It is important that the value chain mapping is done at the first stage. Mapping provides a fast comprehension on the activities, actors and connections in the sector and presents a draft on what is going to be analyzed during the following stages of the analysis; makes it easier to carry out other steps. Also, when the value chain is analyzed without mapping, some factors which are not easy to see at first glance but have impact on the chain might go unnoticed. Since all factors affecting the value chain and the connections between these factors and the connections with national and global value chains are identified during the mapping stage, the overlooking of the external impacts while analyzing local aspects can also be avoided[1].

More than one mapping and analysis may be required depending on the sector where the value chain analysis will be conducted. Firms in some sectors can be very different from each other and form different value chains. For instance, costs of micro firms in a sector might be very different from the costs of large firms. Therefore it might be required to analyze the value chains of such firms separately.

[1] McCormick, D. & Schmitz, H. (2001). "Manual For Value Chain Research On Homeworkers In The Garment Industry". *Global Value Chains*

Box 8: Value Chain Analysis and Mapping of the Production of Milk and Milk Products

One of the traditionalized lines of businesses developed based on livestock breeding in Turkey is the production of milk and milk products. Value chain map of the milk and milk products production in Turkey is visualized in Figure 21. Production begins with livestock, feed and other inputs and the end product is achieved by producing, collecting and cooling the raw milk. Actors and steps in all stages were tried to be defined in order to identify the bottlenecks and opportunities in the sector.
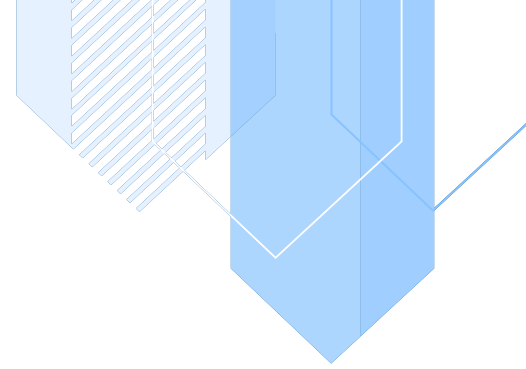
Figure 21: Value Chain Map of the Production of Milk and Milk Products in Turkey

Source: TEPAV and focus group discussions
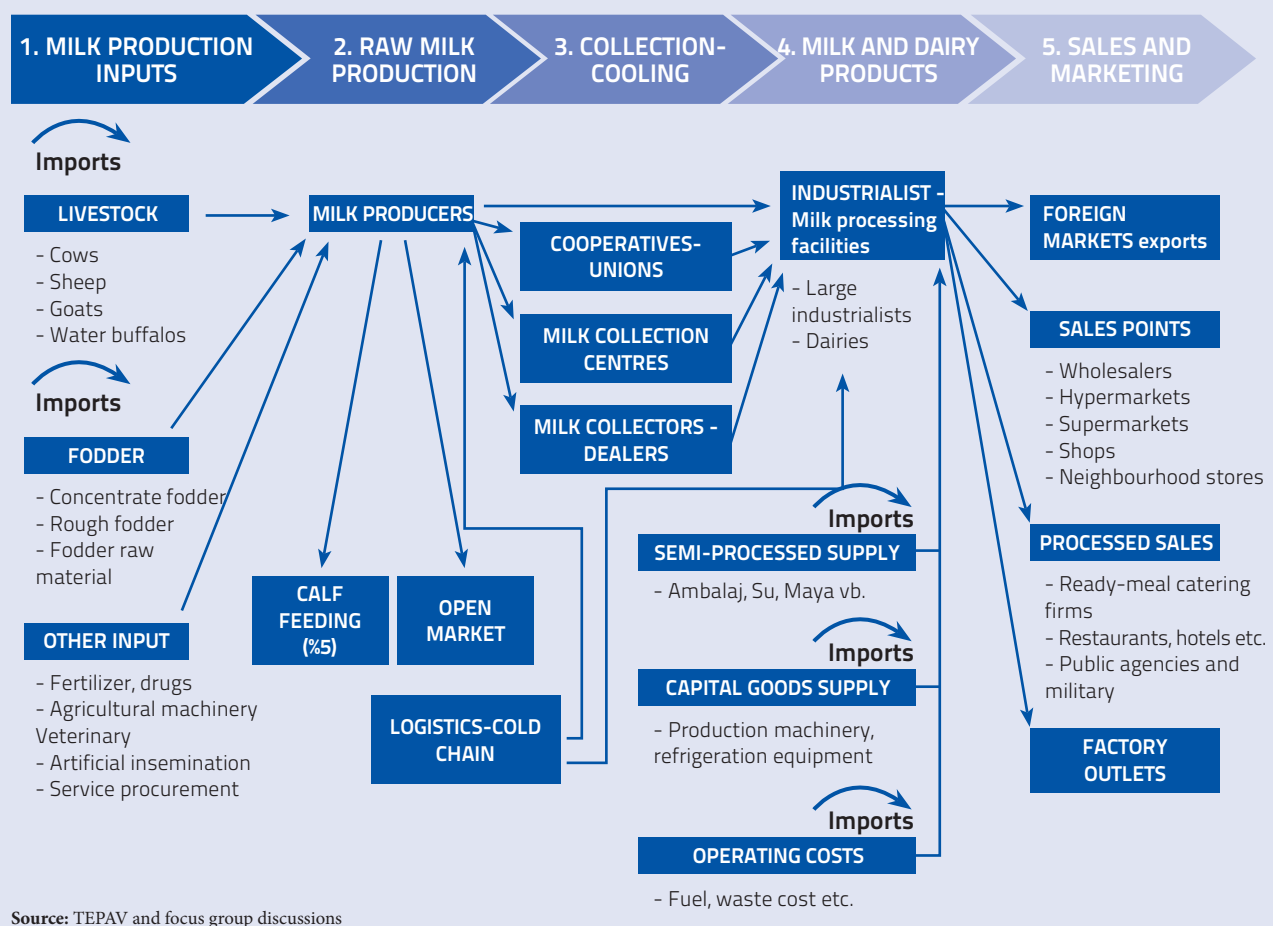
Performance Measurement of Value Chain Stages (Benchmarking)

After mapping all stages of the value chain and the connections between these stages, performance measurement criteria are set for each of these stages, and the difference between these criteria and the best possible performance is determined. This step consists of the steps of measuring the performance of every activity of the value chain, comparing them to national and global examples and as a result, identifying the reasons behind performance deficiencies.

There are many indicators for the performance measurement such as time, cost, added value, productivity and product quality. Competitiveness level of the sector is determined by using these indicators. Every indicator is calculated in a different way and attention should be paid to using the equivalent of the indicator used in performance assessment also for benchmarking.

i.   **Time:** Refers to the time period between the procurement of the inputs required for the value chain stage being analyzed and delivering these to the next stage. It involves the time to deliver these inputs, duration of production, the time to deliver the products to the next stage and the time spent for adapting to the legislation during all these stages.

ii.   **Cost:** Refers to the expenses between the procurement of the inputs required for all stages of the value chain and delivering these to the next stage. It covers all the inputs used during the creation of the product (raw material costs, taxes etc.), primary production factors (labour, land, capital), infrastructure services and administrative expenses (electricity, water, telecommunications, bureaucratic practices, secretariat etc.) and distribution and storing costs (transportation, cooling etc.).

iii. **Added value:** Added value is calculated by subtracting the sum of the prices of the intermediate inputs purchased from other firms, from the price of the product when it is delivered to the next buyer on the value chain. Therefore the added value shows the expenses made on the primary production factors and the contribution of these to that stage of the value chain. If more added value can be obtained by using certain inputs that product becomes more profitable.

iv.   **Productivity:** Productivity means obtaining more output from a certain amount of input. In other words, the more outputs obtained from the same amount of input, the higher the productivity gets. Components of productivity are comprised of the quantity produce or added value per worker, and the quantity produce or added value per input. Productivity is affected by many factors such as the production costs, policies influential on the production, organizations and the sector structure.

v.   **Product quality:** It is an important indicator which can be used for performance measurement in addition to production cost indicators. If there are certain standards about the product being analyzed (for instance, looking at the enumeration of somatic cells for measuring the quality of the milk) it would be appropriate to use them. Also, it might be useful to benefit from indicators such as the faulty product ratio or consumer complaints.

Each ring of the value chain is analyzed within the framework of source-make-deliver order[2]. This framework includes the analysis of all activities, actors and organizations from the procurement of the sources required for implementing all stages of the value chain, to production taking place and to delivering the product to the next buyer.

i.   **Source:** At this stage, all inputs including the raw materials used in production, intermediate products and services are analyzed. During the analysis, cost and quality of and the time spent for each input are analyzed. It is beneficial to analyze many factors at this stage such as the access to raw materials or intermediate products (money and time spent for access), delays and constraints encountered during access, taxes concerning these products and competition policy, transportation and logistics, incentives, local/imported product ratio and constraints encountered during the procurement of imported products.

ii.   **Make:** Production stage is the stage which starts after the procurement of the inputs. Primary and secondary factors of the production are determined at this stage and the effectiveness and the constraints encountered are evaluated.

- **Primary factors of production mainly consists of labour, capital and land expenses.** Cost of each of these factors are proportioned to the distribution price of the product and a fast foreknowledge is acquired about which of these has more impact on the price. However still the performances of all these factors should be compared to other regions/countries and good examples. It is the only way to obtain a real conclusion on the performances of the factors that were analyzed. While analyzing the factors, impacts of the public and other

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[2] FIAS (2007). *Moving Towards Competitiveness A Value Chain Approach*. Washington: World Bank Group.

entities and bodies which influence these factors (labour market regulations, regulations on acquiring land etc.) should also be included in the analysis.

- **Secondary factors of production are infrastructure services, administrative expenses and other expenses.** Indicators such as the time spent for accessing infrastructure services and cost of these services, expenditures made for adapting to bureaucratic regulations and the time spent and the labour required to carry out all these can be examined. In order to facilitate the analysis regarding the secondary factors, a list of bureaucratic procedures and infrastructure services required for the activities in the stage of the chain which is being analyzed is prepared and the analysis is conducted via this list.

iii. **Deliver:** This step includes all activities regarding the marketing and distribution of the product as the end product or intermediate product. Quality, time and cost of logistics are among the most important factors which affect the timely delivery of the product into the market. The factors which should be looked for analyzing the trade logistics and transportation are comprised of indicators such as; transportation methods used, time and money spent on transportation, preparation and control before shipment, expenditures on ports and terminals and waiting period, inland transportation time and cost of containers and losses which occur during shipment and storing.

Performance deficiencies in the sector and the bottlenecks which affect the competitiveness of the sector the most, are identified via benchmarking, i.e. comparing the sector's performance to sector performances in other similar or good example regions and countries. After conducting performance analyses in the sector, this performance should be compared to other sectors in competitor regions and good examples in order to understand the impact of this performance on the competitiveness. However selecting the sector for comparison is a challenging process. In order to do so, results of the market analysis conducted before the value chain analysis are used. Also, it might be difficult to access all data related to the sector in every country and thus sector research conducted by national and international organizations[3] can be used for selecting the regions and countries for comparison and find data regarding these. Some example indicators for benchmarking are given in Table 26.

Table 26: Example Indicators and Sources for Benchmarking

	INDICATOR	SOURCE
Added Value Indicators	Percentage of GDP, added value per working hour unit, added value per invested capital unit	TURKSTAT, SGK World Development Indicators, TOBB database, World Bank Investment Climate Survey Data Base, similarly designed surveys, face-to-face interviews, focus group discussions, sector research conducted by national and international organizations, sources such as Business Monitor, EURO Monitor, data from sectoral organizations and relevant ministries in Turkey and abroad, data to be collected from local companies
Input Factor Indicators	Salary/working hours, hours/days (or weeks) worked, production/ working hours, shipment amount /working hours, salary/kilowatts-hour, tax	
Logistics Indicators	Cost of logistics, total time required for import process, time required for customs transactions, logistics cost of imported products, logistics cost of exported goods, bureaucratic processes required for foreign trade	

Source: FIAS World Bank Report, 2007

Sequence of the performance measurement of value chain stages differ depending on the purpose and both starting from the end product which reaches the end user, i.e. the last ring of the chain and doing a backwards analysis, and starting from the raw materials and moving towards the end product are possible methods. For instance, if the aim

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[3] TEPAV, World Trade Organization, Food and Agriculture Organization, United Nations Industrial Development Organization, International Trade Center, World Bank.
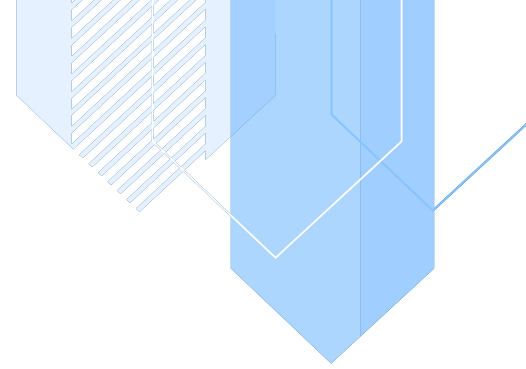
is to understand the reason behind a problem encountered in the end product (price, quality etc.), when there is a problem determined in the end product, a step is taken backwards to the previous stage and an analysis is conducted accordingly. By doing so, the problematic areas and whether they are caused by a constraint in the previous stage are identified one by one. On the other hand, when the aim is to identify the competition level of a sector and constraints in this regard, it is possible to conduct an analysis which goes from the raw materials towards intermediate products and finally the end product. Here, it is ensured that other products besides the raw materials and intermediate products are also seen and if necessary, and analysis can also be conducted for these.

While many existing data sources can be used during the performance measurement stage, also new data sources may be needed to be created. (It may also be necessary to crate new data sources.) Local, regional or country based data about the sector can be accessed via international and national organizations and entities (TURKSTAT, SGK, TOBB etc.). While these sources provide general information on the sector or regions they are not adequate for determining the problematic areas. Also, some of the sectoral data are not accessible on the region or province level. Therefore after analyzing these sources, missing data should be collected by organizing face-to-face interviews and focus group discussions with important actors of the sector. It is preferred that interviews are conducted with owners of businesses and various unit managers at the businesses. Apart from these, it is beneficial to conduct interviews with other stakeholders such as suppliers, logistics firms, banks, chambers of trade and industry and relevant ministries which might be influential in the sector. Interviews ensure that the value chain map is checked and missed points are revealed, while also making the problematic areas in the chain clearly understandable. Indicators and sources that can be used or created for the value chain analysis are presented in Table 27 in detail.

Table 27: Indicators and Sources That Can be Used for Value Chain Analysis

INDICATOR	SOURCE
Various global, national and data on the selected sector (costs, prices, tax rates, incentives etc.)	Sources such as Business Monitor, EURO Monitor etc., data from sectoral organizations and relevant ministries in Turkey and abroad, data to be collected from local companies
Data on the firm profiles (Buyer profile, end/intermediate buyer, location etc.)	Investment Climate Assessment Surveys
Comparative prices of end and intermediate products	EUROSTAT, TURKSTAT
Number of firms and employees by sectors	TURKSTAT, SGK
Clustering data (major suppliers, customers, location of machine and equipment suppliers etc.)	Investment Climate Assessment Surveys, TURKSTAT Input-Output tables, SGK recorded employment data, TOBB industry data base
Obstacles encountered in the value chain (storing and services, machine and equipment procurement)	Investment Climate Assessment Surveys
Qualitative data for performance measurement	Specially prepared surveys
Quantitative data for performance measurement	Previously conducted sector studies, sectoral data to be obtained from sources such as TURKSTAT

For conducting a sector or product performance measurement in the value chain analysis, it is possible to follow the case study method. Regional value chains differ from the national chains. Since it is not possible to assess some of the sector and product data from existing data sources on a regional or provincial basis, a value chain analysis to be conducted on the regional level is done by addressing one or more firms in detail in the sector to be analyzed. Since the aim is to analyze not a single firm but the value chain of a product or a sector, the validity of the data to be obtained this way should be checked by conducting interviews with entities such as other firms, service providers and chambers of trade and industry.

Box 9: Analyzing the Consumption of Milk and Milk Products via Benchmarking

It is possible to make a comparison of the demand for the end product by analyzing the general trends in consumption. In Figure 22, Turkey's and world's consumption of milk and milk products per capita are compared. It is observed that these products are highly preferred by the local market. However when the same comparison is made with European Union which includes relatively developed countries, it is understood that the level of consumption of milk and milk products in Turkey is not at high levels.

Also, while the regional consumption distributions are not considerably different from the population distribution, it is understood that there is a different distribution of product preferences of the regions. Mediterranean Region has a particularly higher concentration in milk consumption, while Black Sea Region is observed to have a higher concentration in yoghurt consumption.

Figure 22: Equivalent Milk Consumption Per Capita in Turkey, EU Countries and World (Kilograms, 2000-2010)
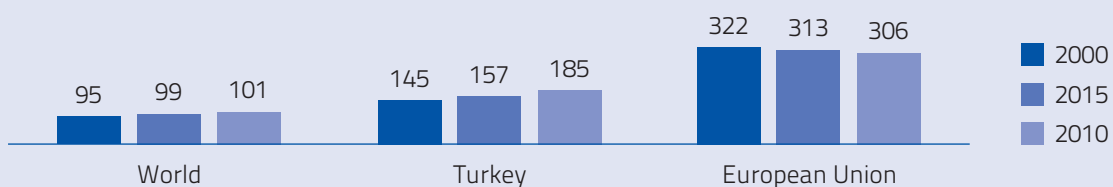
Source: **Ministry of Food, Agriculture and Livestock, FAO, UN**

Figure 23: Regional Distribution of Total Milk Consumption in Turkey (%)
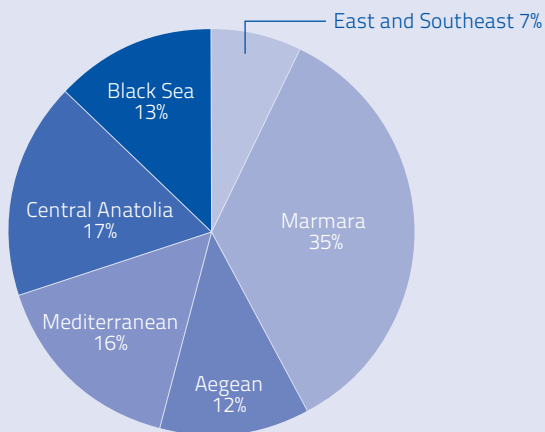
Source: Ipsos Household Consumption Panel

Figure 24: Share of Milk, Cheese and Yoghurt in the Total Food Expenditure of Turkey (%, 2010)
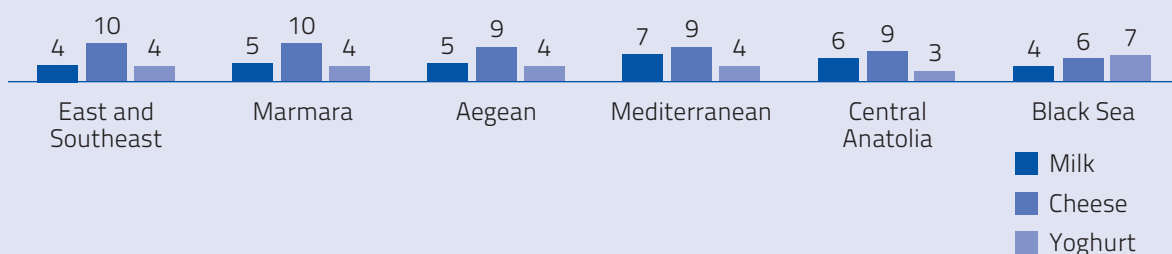
Source: Ipsos Household Consumption Panel
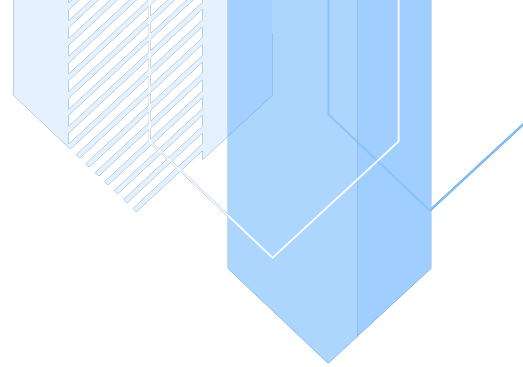
Box 10: Analyzing Production of Milk and Milk Products via Benchmarking

As indicated in Figure 25, Turkey is the ninth largest milk producer in the world with 17.5 thousand tons of production. As the ninth largest producer, Turkey has a problematic value chain in terms of productivity and is one of the countries which obtain the least amount of milk per cattle.

Figure 25: Milk Production in the World (Thousand Tons, 2014)

EU-28	159.29
India	136.60
USA	93.49
China	42.73
Pakistan	38.75
Russia	31.70
Brazil	29.72
New Zealand	21.51
Turkey	17.50
Ukraine	11.71
Mexico	11.42

Source: OECD-FAO Agricultural View 2014-2023
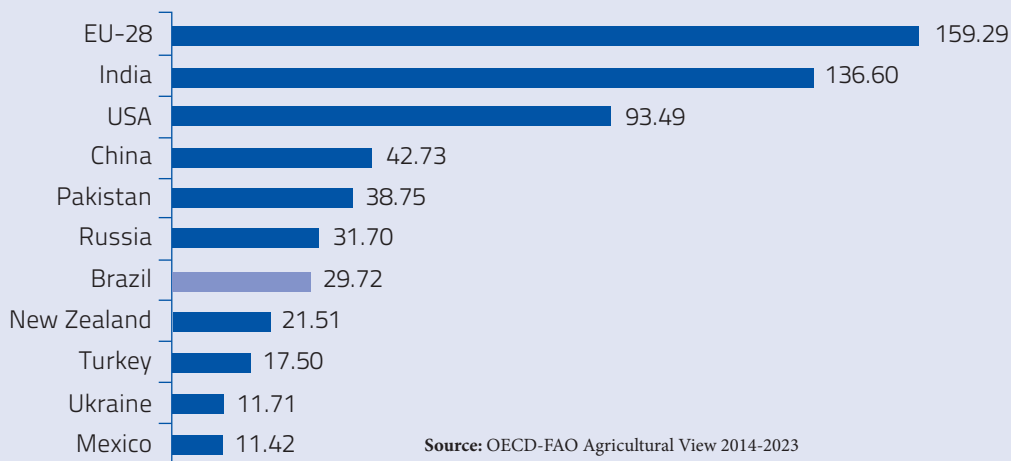
Figure 26: Milk Productivity Rates in OECD Countries Between 1994-2014 (Tons/Cattle)

Country	1994	2004	2014
USA	7.4	8.6	10.1
Canada	6.2	8.0	9.2
South Korea	6.1	7.9	9.1
Japan	6.9	7.9	8.2
Switzerland	5.1	6.8	7.0
EU-28	4.7	5.9	6.7
Norway	6.1	5.0	6.1
Australia	4.7	5.1	5.6
Argentina	3.3	4.6	4.8
Turkey	0.3	0.65	0.7
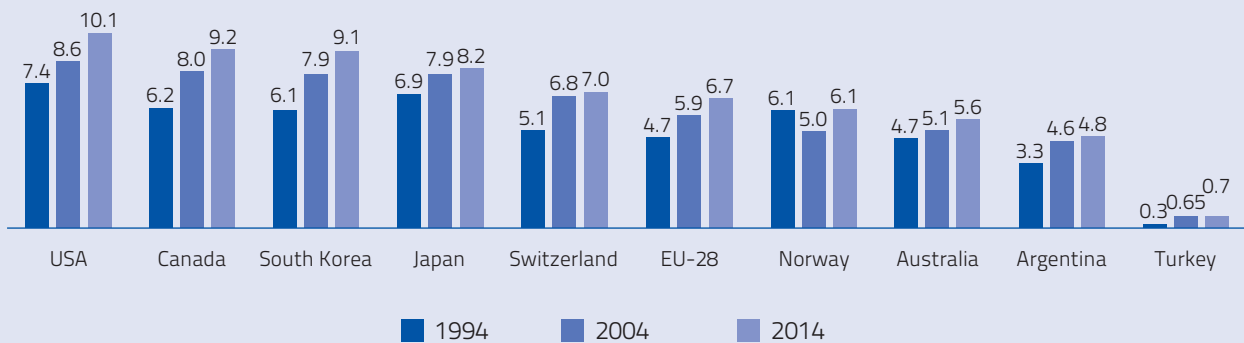
Source: OECD-FAO Agricultural View 2014-2023

Note: Milk productivity rates in Turkey were announced according to TURKSTAT as 3.0 for the same year. Even if this figure, which is very different from the ones by OECD, is included in the analysis, still there is no change observed in the Turkey's position in the ranking in Figure 26.

As indicated in Figure 27, the largest share in Turkey's production of milk and milk products belongs to drinking milk. In Figure 28, it is observed that the facilities which produce milk and milk products are spread to almost all provinces in Turkey. This situation can be explained by the fact that raw milk is an easily perishable product. In addition, since cooling and transportation are significant inputs in the product's value chain it drives producers to produce in the areas close to raw materials and sell around these areas. The high number of production facilities in the regions where the milk consumption is higher and the scale of these facilities, which is clear by the number of their average workers, verify this argument.

Box 10:

Figure 27: Distribution of Production of Milk and Milk Products by Product Groups (%, 2014)

Whey 23.16%
Drinking milk 49.42%
Cheese 21.87%
Crème 1.08%
Powder milk 4.47%
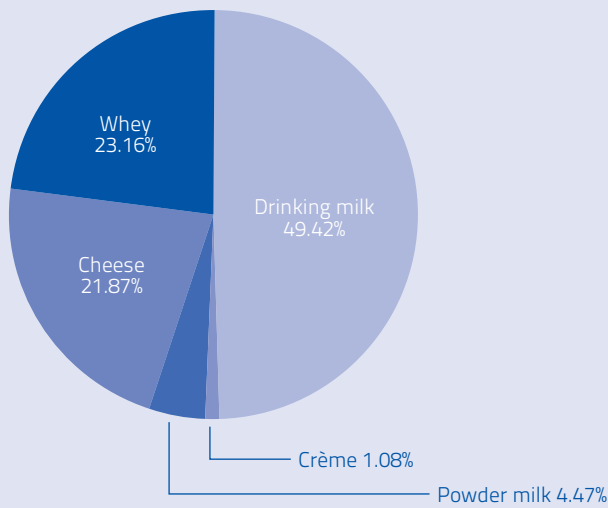
Source: TURKSTAT, TEPAV Calculations

Figure 28: Geographical Distribution of Registered Producers of Milk and Milk Products by the Scales

Average number of employees

>10
7–10
5–7
1–5
<1
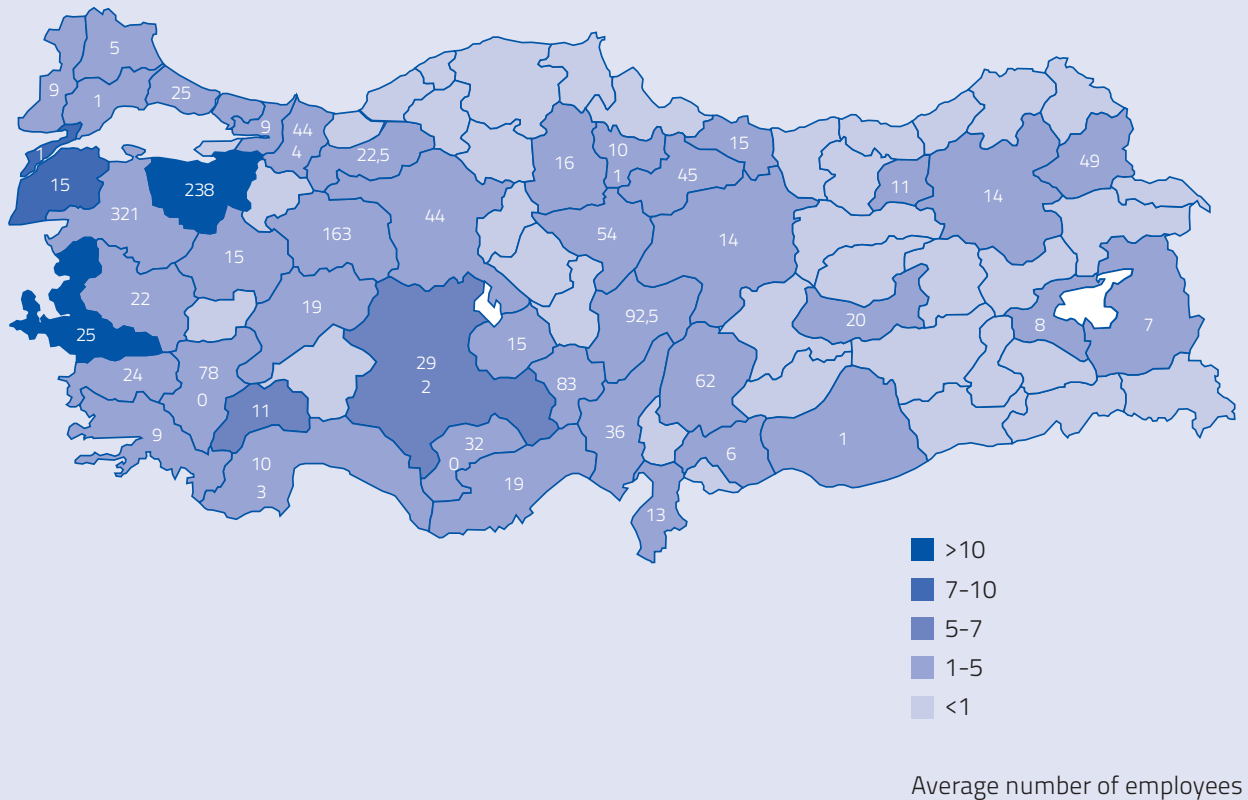
Source: TOBB Industrial Data base

Box 11: Analyzing Milk Prices via Benchmarking

When the consumer prices of raw milk in Turkey which is obtained with low productivity are compared to different countries and country groups, it is observed that the consumer buys one liter of milk for a very higher price in Turkey. However, this difference is formed during the production stage rather than the low productivity of the raw milk production. As indicated in Figure 29 and Figure 30, while the consumer reaches milk for a very higher price compared to the EU average, the milk producer in Turkey does not generate a very different profit compared to an average milk producer in USA or EU.

Figure 29: Milk Consumer Prices Per Liter Between 2007-2012 (Turkey and EU Average, Euro)
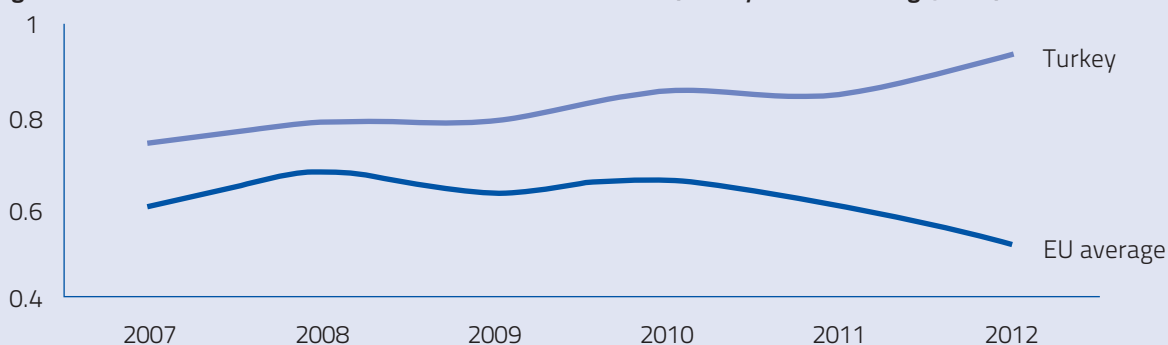
Source: Eurostat, TURKSTAT, TEPAV Calculations

Figure 30: Retailing Price of One Liter of Milk in Turkey and Various European Union Countries (Euro, 2012)
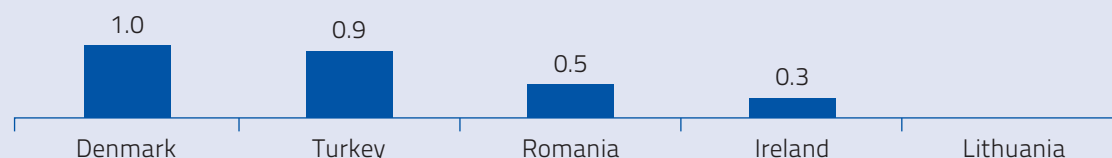
Source: Eurostat, TURKSTAT, TEPAV Calculations

Figure 31: Ratio of Raw Milk Prices in Turkey to the Prices in European Union and USA (2008-2013)
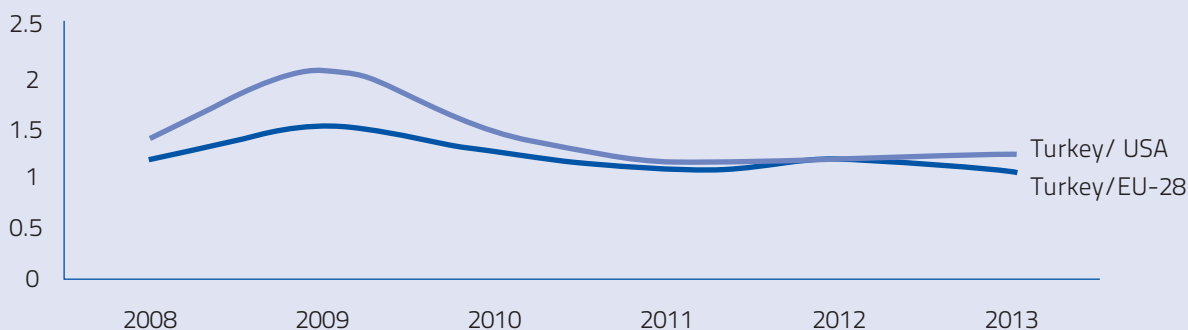
Source: International Comparison for LTO Milk Prices, TURKSTAT, TEPAV Calculations

Note: Annual foreign exchange rates announced by the Central Bank of the Turkish Republic were used for foreign exchange rate conversions.

Analyzing and Prioritizing Performance Indicators and Developing Policy Recommendations

Reasons behind the bottlenecks identified during the performance analysis are analyzed at this stage. Reasons behind the performance deficiencies might occur due to the impacts of different stakeholders of the value chain during the source-make-deliver stages. Three main stakeholders in the stages of value chain are firms, consumers and public entities. And the reasons behind the bottlenecks encountered during the stages of the chain could be related to institutional ineffectiveness, deficiencies in infrastructure, product market (e.g. constraints caused by the legislation or problems in logistics), factor market (e.g. salaries, capital expenditure, constraints in the labour market), distribution/logistics, or market (e.g. market diversification, competition environment, research and development, product diversification).

Identified bottlenecks and constraints are prioritized based on the impact they create on the regional competitiveness. Impact of the bottlenecks identified in the analyzed sector on the competition level may not be equal. For instance, if the price of feed significantly affects the price of the end product in the red meat value chain while the cost of animal healthcare has a less significant effect, this should be prioritized and the constraints which make the feed prices high should be resolved as a priority.

It is useful to prioritize the identified bottlenecks and constraints; and the policies, programs and strategies to be developed against them in line with the implementation capacity. While the reasons behind the identified bottlenecks may be due to the wrong practices of the firms or infrastructure problems, they may also be caused by legislation implementations. Therefore it may not be possible to implement all the solutions to be developed against these on the local level. Thus, at the stage of prioritizing the constraints, works should be carried out according to the areas included in the fields of activity of development agencies.

After identifying and prioritizing all bottlenecks; programs, policies and strategies are developed for eliminating these. While these policies may be national policies, they may also be regional programs in which the development agencies play an active role. Although national policies are the policies where the agencies do not have much space to maneouvre, still the problematic areas may be ensured to be addressed and assessed due to the connections with the Ministry of Development. On the other hand, the programs which will improve the infrastructure services, increase the effectiveness of firms or accelerate the logistics of firms in broader markets are also the areas where the development agencies will have an effective role.

Background Studies and Assessment

Value chain analysis is a tool which can be effective in analyzing a sector in depth and identifying the constraints in the chain and therefore increasing the regional competition level and determining the regional development priorities. Identifying the constraints in a sector is the first step of eliminating them. Eliminating these constraints will not only reduce the costs in the region and contribute to the producers by increasing productivity, but will also affect the intermediary firms and suppliers in the chain which are in interaction with these firms and also the consumers. On the other hand, developments in the sector will attract new investments, increase exports and create new areas of employment. Also, the increase in productivity and quality will reflect to the consumers in a positive way and all of these will contribute positively in the development of the region.

Linking other parts of the toolkit to the value chain analysis creates a very important stage in determining the regional competition level analysis and strategies. Reciprocal interactions of the value chain analysis and the other parts of the toolkit should be assessed together. One of the main parts of the toolkit to be linked to the value chain is the investment climate assessment as it is able to reveal the obstacles to the creation of a value. Also the production and exports

structure analysis is used for identifying the products to be analyzed in the value chain analysis and comprehend the competitiveness of these products and understand the markets where these products are sold. In addition to these, the skills set analysis can show the skill level of the region and provide important inputs on the reasons behind the incompatibility between labour supply and demand if any, and also on the steps to be taken for eliminating these. Procurement of raw materials for the products being produced and the distribution of these products are critical stages of the value chain and can be directly affected by the connectivity. Therefore, the connectivity analysis is important for analyzing the problems and deficiencies in the supply and distribution chains within the rings of the chain. Finally, the value chain analysis contributes greatly to the tool of analysis of external economic environment. As a result of comparing the sector or product value chains in the region to the value chains in the external economic environment, countries or regions which may be potential partners in end or intermediary product markets and what kind of an impact can cooperation with potential partners have on overcoming bottlenecks can be analyzed.

It is beneficial to support the value chain analysis with some works after its completion.

- **First one is to verify the findings determined in the analysis.** Findings obtained as a result of the analysis shall be verified via focus group discussions or face-to-face interviews to be conducted with relevant stakeholders afterwards and any missing points or mistakes shall be revised.

- **External factors affecting the results of the value chain analysis should be analyzed.** Some existing but temporary factors at the region might have affected the value chain and it might not have been possible to determine the temporariness of these factors while conducting the analysis. Therefore particular attention should be paid to the impacts of these factors. For instance, the existing political situation in Syria may not have actually caused any problems in the procurement of the inputs supplied previously by Syria. In such a case, the problem in the procurement of the inputs might be a temporary situation and this should be taken into account in the analysis.

- **Before initiating the value chain analysis, it will be beneficial to conduct research for identifying the important or possibly important sectors in the economic development of the region for the selection of the sector.** Selection of the sector is one of the most important works to be conducted before starting the analysis. Selecting the sector for the analysis is a critical step with regard to understanding the competitiveness of the region. Conducting the analysis in sectors where the region is competitive or expected to be competitive will provide a greater contribution to the region's competitiveness. Therefore, it is important to conduct research for determining the sectors. Attention should be paid to identifying the advantageous areas of the region for the development of the sector which was selected in the scope of the analysis (such as having a R&D centre, logistics centre etc.).

Policies and programs created as a result of the value chain analysis should be assessed with an impact analysis. Although programs are developed for important and prioritized problematic areas as a result of the value chain analysis, how these programs work and whether they create the expected impact or not should be assessed. Thus, it can be seen whether the time and financial sources spent on these programs and policies were used effectively or not. In cases when a problem is identified in these, some changes are made in policies and programs; new ones are developed. New policies and programs should be in practice for a while in order for an impact analysis to be conducted. The time period for these to be in practice before being assessed might differ among policies and programs.

4. SKILL SET ANALYSIS

4. SKILL SET ANALYSIS

Table 28: Skill Set Analysis Summary Table

Purpose of Use	1. Analyse the quality of labour and labour market by region/province 2. Identify labour demand and the needs for training that should be delivered to labour 3. Analyse current trends and supply and demand equilibrium in the labour market 4. Make projections into the future
User Profile	Experts working in statistics, human resources, labour markets, occupational training, research methods and field studies
Method	Compile existing data on labour and demography of the region, survey, analysis of survey results, comparison and analysis of findings with other data
Potential Outputs	1. Labour dynamics identified by region/province 2. Supply and demand equilibrium in skills by region/province 3. Training needs assessment
Relevant Entities and Stakeholders	ISKUR, TURKSTAT, MoNE, TOBB, YOK, OSYM
Critical Issues	1. The sampling for the field study should be representative of all matters for the purpose of research. 2. Local actors should be involved to effectively conduct the analyses of supply and demand.

Skill set analysis is an analysis framework that focuses on the participation to labour markets, the profile of those who participate in the labour market, the mobility of the labour force within and between the regions, labour force demands of the companies and the training that should be given to labour force at national and international level. Main qualities of the skill set analysis are shown in Figure 32. In short, skill set analysis is to evaluate both the numerical value and qualities of the inputs and outputs of the labour force dynamics of the region and analyse the labour force skill, i. e. skill set of the region. Making/evaluating labour market analyses around the country and local/regional level is important in terms of determining regional differences. While regional differences are identified by analysing the region-specific features, regions can also be compared by the results obtained from labour market analysis carried out all around the country.

Figure 32: Components of the Skill Set Analysis
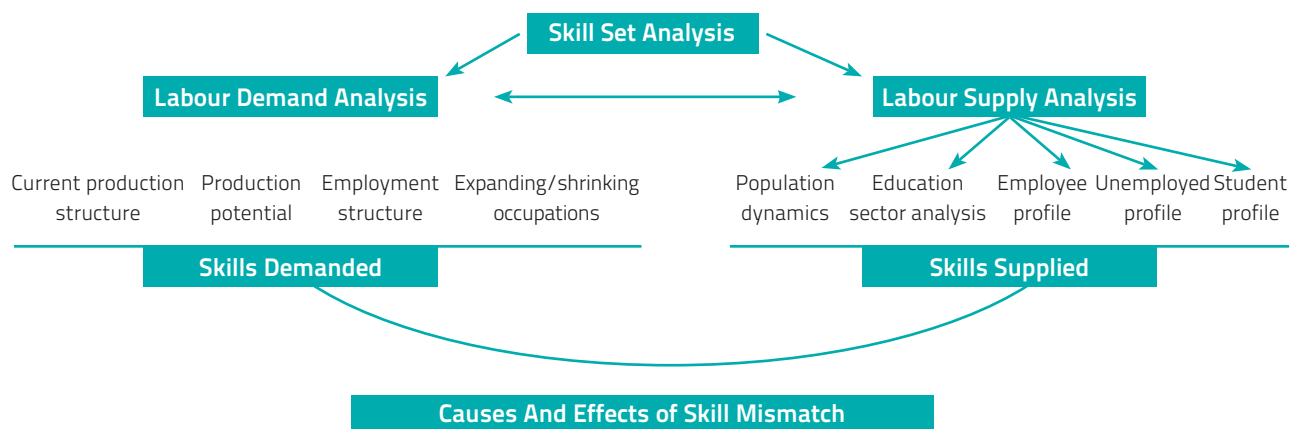
Source: TEPAV Compilations

Skill set analysis provides one of the important inputs for the regional competition analysis. The human resource and the labour force that is the output of this source are in direct or indirect interaction with all of the competition agenda elements. The results of labour market analysis are required in order to harmonize the labour force supply and demand, make estimation for the future and evaluate the effects of the policies implemented at local/regional level.

Local/regional labour market analyses have two main focuses being supply analysis and labour force demand (need) analysis. Labour force supply and demand are examined together in order to be able to monitor the acts and interactions of all the actors that make up the labour market. The examination of the focus in question separately and in interaction is important in order to conduct the analysis in a holistic manner.

- **Labour force supply analysis:** Population, demographic structure, labour force participation, employed, unemployed and student profile, education sector analysis, foreign language level of the population, data on university contingencies and other indicators on labour force supply, and the indicators created by matching these indicators are examined. The current definition of labour force and how these features will change in the future are being tried to reveal by using these indicators. For example, while the current population and the educational status, age distribution, gender distribution, etc. features of the region are examined for the current situation; population increase rate, life expectancy at birth by sex, infant mortality rate, etc. indicators are examined for the future expectations of these indicators.

- **Labour force demand analysis:** Subjects such as the current employment structure, current production structure, production potential of the region, employment tendencies in the companies, professional and general skills demanded, skill mismatch in regional employment, the professions that will develop or shrink in the future, professional and general skills to be needed in the future, etc. are examined.

After obtaining all of the data on labour force supply and demand, a study on revealing the harmony of labour force supply and demand is necessary. It is especially useful to work on the concept skill mismatch, which is the reason for the problem of structural unemployment in Turkey. For one of the main reasons of structural unemployment is the mismatch between the developing consumption structure and market conditions, i. e. changing demand and supply. If skill mismatch is worked on, it is possible to make determinations that can eliminate this mismatch. Advancements can be made for solving the structural unemployment problem with these determinations. The reasons and consequences of this mismatch are being examined at local/regional and national level by analysing the skill set of the region. Thus, inputs that will allow providing for policy proposals at local/regional and national level in order to eliminate the mismatches between supply and demand. Furthermore, it is possible to make estimations on supply and demand in medium term in case the analyses are repeated at regular intervals.

Labour market supply and demand analyses of the provinces are used in order understand both the current situation of the labour market and the transformation in the labour force structure. In both cases, the competing provinces in the subjects chosen (e.g. if the production structure is preferred as the benchmark, the provinces of which production structure are similar) are found first, and the similarities and differences in labour market are resolved. Labour market indicators such as the level of education, level of foreign language, qualified labour force migration rate that can be used in the development of the competitiveness of the province are obtained. Regional competitiveness policies in the future period are determined in accordance with these important indicators. While current situation is determined when this process is only applied to current data, the transformation in the labour force structure can be understood when the past time sets of the same date are used.

Indicators that will be used for benchmarking by the labour market structure of the provinces can be revealed by present data, as well as the analyses to be carried out with data to be collected with field works. It is possible to use derived indicators that are considered to be important in addition to the indicators summarized in Table 29 when deciding what these indicators can be. Furthermore, examining the transformation of labour force indicators in time is an important method in understanding the transformation of the supply and demand of labour market of the provinces.
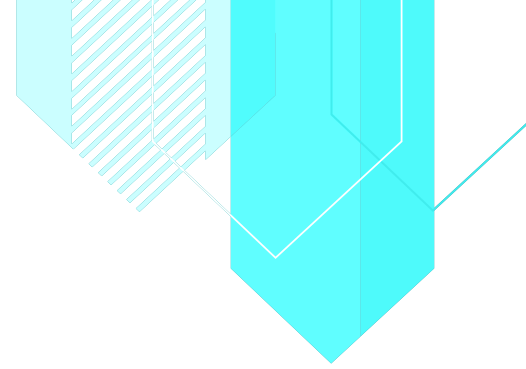
The monitoring of the changing dynamics of the labour market, its contribution to regional competitiveness and that the results are updated are ensured by periodically repeating the analyses. Periodic monitoring of the tendencies in main indicators, which is an important starting point of the analysis period, is easier and cost-free in terms of data supply. For the statistics on main indicators are regularly updated and collected at both regional and national level at regular intervals such as once a month or three months and published by TURKSTAT, ISKUR, SGK, etc. There may be restricting factors in terms of budget and time in conducting periodic works for the process that requires field work, and of which details are explained in Chapter 4.4. However at this point, it is beneficial to take into consideration that surveys provide outputs on the perception that similar labour market elements have especially within the scope of the employer, employee, potential labour force and survey, and that the variability of perceptual results in time is high. Perceptual data obtained using the survey are important in that they provide input for understanding the result of the actions of the elements affecting the labour market. In this context, it is possible to provide mutual benefits by supplying the necessary data on other provinces/regions in the same competitive ecosystem. The additional benefit of this method is that the interaction between the regions/provinces sharing the same competitive ecosystem can be analysed at a common ground through cooperation.

It is advised that development agency specialists who will be employed in labour market supply and demand analysis are chosen among people who have a good command of statistics, labour markets, vocational training, survey and field works. The duty of development agency specialists in analyses to be carried out at regional level, to eliminate the mistakes encountered during this work, and ensuring the collection and making ready for analysis of the data. Thus, it will be appropriate to choose the people who will conduct the field work among people who know the region well and have a good command of labour market problems. It is provided for that experts who are more close to the labour market restrictions of the region will be more successful in asking questions on finding the origin of the question and deriving analyses from these questions.

Tables and graphs on some of the indicators to be examined while conducting labour market supply and demand analysis within the scope of the toolkit are given as examples in the context of "Labour Market Supply Analysis" and "Labour Market Demand Analysis". In the compilation of the results of the reports, presentations, etc. to be prepared by using the toolkit, it is advised to evaluate the outputs that are similar to the graphs and tables given but have a larger scope. The purpose of showing the tables and graphs gives idea on the format in which the results will be provided and how the data will be interpreted. As these tables and graphs are prepared as examples, the data they contain may not be consistent with the real values and updated.

Figure 33: Steps of the Supply and Demand Analyses of the Provinces

STEP 1	STEP 2	STEP 3
Identify Competing Provinces	**Analysis of Labour Market Supply and Demand**	**Identify Priorities**
1. Identify provinces with similar labour supply and demand to the province in question	1. Analyse labour supply of the province (match with regional vision)	1. Where the province's labour supply and demand is lagging behind competing provinces, examine causes
2. Identify provinces to the province in question is planned to have similar labour supply and demand	2. Analyse labour demand by companies in the province	2. Initial findings for developing underdeveloped areas
	3. Compare labour supply and demand with competing provinces and identify mismatches	

Identification of Competing Provinces

Main indicators such as employment, labour force participation rates, population, population growth rate, skills mismatch and causes, open employment statistics, etc. that are summarized in Table 28 are used for the skill set analysis in the identification of competing provinces. Provinces that are similar to the province analysed are identified as potential competitors. In the following step, potential competing provinces of the province are identified as a result of structured meetings where the strengths and weaknesses, capacity and potentials of the city will be discussed in-depth, to be organized by the development agency with the opinion leaders of the province and local actors in cooperation with ISKUR Provincial Directorates and Commerce and/or Industry Chambers affiliated to TOBB in provinces. Structured interview is an interview, the content of which is determined before the interview, the questions to be asked are ready, and the answers of the interviewees are collected in such a way that they fit the previously prepared answer patterns of the questions. In structured interviews, the answers to the same questions are requested from each interviewee, and qualitative and quantitative data are collected. It is possible to follow a similar process to determining the current competitors in the identification of the future competing provinces of the province. However, provinces that reached the region's development vision, that are more developed than the province under research are chosen while determining future competing provinces.

The flow of the process may change preferentially while determining the competing provinces. First, potential competitors are identified by conducing qualitative assessments with the stakeholders. As a second step, provinces that yield similar results as a result of the analysis are determined as competing provinces by analysing the main labour force indicators of the competitors identified. Another option in the identification of competing provinces is to determine the benchmark completely using qualitative and quantitative methods, i. e. the implementation of the process by not including inputs such as stakeholder meetings, the views of opinion leaders, etc. However, it is provided for that a determination enriched with the opinions of different stakeholders, to which objective and subjective points-of-view are integrated, will yield more satisfactory results.

Table 29: Skill Set Analysis Main Indicator and Sources

INDICATOR	SOURCE
Open work statistics	ISKUR, EU Labour Force Surveys
Demands and expectations of the companies towards the quality of the labour force	Specially designed surveys
Sectoral structure of the employment, sectoral structure of work places	SGK, TOBB
Professional, technical and general level of knowledge of the labour force	Labour force survey, specially designed surveys
Skill mismatch and its reasons	Labour force analysis survey, ICA Surveys
Mobility of the population, population increase rate	TURKSTAT
Employment tendencies and profiles in companies, company perceptions of labour force skills	ICA Surveys
Education and age distribution of the labour force	TURKSTAT, HIA
Employment, Unemployment and labour force participation rates	TURKSTAT, SGK, EU Labour Force Surveys
University, student, graduate and contingency data	OSYM

Labour Market Supply Analysis

The first step in labour market supply analysis is to analyse the data of the population and labour force that makes up the supply. Population analyses, education sector analysis (analyses on the level, profile, etc. in the education institutions in the region), worker profile, unemployed profile, student profile, and the foreign language level of the population provide the main inputs to supply analysis. While making labour force supply analysis, it is possible to define the data to be supplied from stakeholders such as TURKSTAT, SGK, TOBB, MNE, YOK and ISKUR as data that will constitute the starting point. The features and potential of the labour force supply in the province are revealed with these data. The profile of labour force supply pictures the potential of the province in regional competitiveness.

In the subsequent step, critical subjects for the region are identified and the core of the labour force model of the region are created by evaluating the outputs obtained as a result of the analysis. In-depth researches (evaluation of present data with different points-of-view and deriving new data that are regarded as important) that will support the field-specific story regarding critical subjects identified (e.g. surplus of skilled labour force rate in the unemployed profile, lack of labour force, etc.) and field research is conducted in order to compile data that may be necessary, but not yet obtained. Explanations on survey design for field research are shown in Chapter 4.4.

- The outputs obtained as a result of the analyses with the other tools of the toolkit are used in the evaluation of the first findings. For example, if the migration rate of qualified labour force is at critical level when evaluating the population structure of the region, it is beneficial to evaluate outputs regarding life quality and labour force demand together.
- Measurement of the expectations of the students, unemployed and employees and evaluating the perceptions and future potential of the region on labour market through field research in labour market allow the feeding of the analysis with subjective data.

The labour force supply model of the region is formed by assessing the outputs of all works carried out for determining the labour force supply as a whole. In summary, the components of the supply model are listed as gathering the current data in order to create a framework at the first stage, examining different present data for subjects that are deemed as important and the assessment of the data collected from the field. It is beneficial to identify and bring the connection points that will interact with the labour force demand to the fore in the mode on the human resource forming the regional potential and labour force supply (For example, skill supply determined from such indicators as the education level on the labour force profile, level of professional expertise, foreign language level etc.)

Population Dynamics and Competitiveness

This section includes certain indicators on evaluating the effect of the population structure in the province on the economy of the province, data sources where these indicators can be obtained and information on the interpretation of the indicators. The population structure in the province also shows the labour force structure in the province. The labour force point-of-view towards associating the population with competitiveness enables making determinations both on the current situation and potential of the provincial production structure. Thus, indicators measuring the labour force potential of the province are examined in this section. Data to be required in this section can be easily found using Address Based Population Registration System (ABPRS)[1] of which data are collected by TURKSTAT.

The main data that can be considered when it comes to the structure of the population are the population, age and gender distribution of the province and the comparison of the province with neighbouring provinces. It is possible to achieve data at NUTS (Nomenclature of territorial units for statistics) First, Second and Third Level categories and in smaller settlement unit level (for example, municipalities) by settlement units in TURKSTAT ABPRS database. Indicators

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[1] http://tuikapp.tuik.gov.tr/adnksdagitapp/adnks.zul

that take the highest and lowest values among the regions that are compared or the change of the same indicators in time, and if available, high deviations in these series are taken into consideration in the interpretation of the graphs derived by population properties. And in the second stage, implications are made on the reasons and consequences of this situation. For example, the population and gender distribution data on the provinces in GAP Region and Izmir for 2014 are shown in Figure 34, and the status of the provinces by age intervals are shown in Figure 35. It is seen that Gaziantep has the highest population among the provinces in GAP region that are observed in the figures. Furthermore, it can also be said that the population is distributed evenly by gender. And from age distribution statistics, it is seen that Izmir is the city with the highest economically active population[2] rate.

Figure 34: Gender Distribution of the Population by Provinces (2014)

Source: TURKSTAT, ABPRS

Figure 35: Age Distribution of the Population by Provinces (2014)
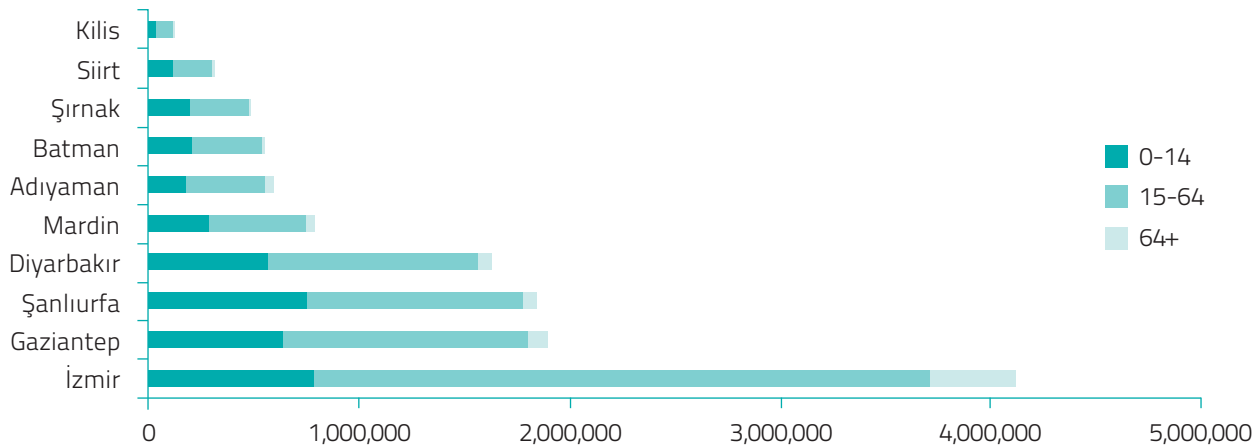
Source: TURKSTAT, ABPRS

In the evaluation of the population structure which is the initial step of labour force supply modelling, comparison is made with indicators that are deemed as related to the labour force structure in addition to the present indicators. For example, it is possible to make comparison with the distribution of the population by age when examining the distribution of labour force by gender. For example, in Figure 36 that shows the distribution of labour force by gender, it is seen that the inequality of the population that exhibits an approximately equal distribution by gender stands out. As an example for the use of the field work outputs which is another stage of in-depth evaluation, the survey

[2] Economically Active Population: The population between the ages 15 and 64 are regarded as economically active population.

results of the employment of women in GAP, Izmir, overall Turkey, Poland and Egypt investment climate are given. In the interpretation of these graphs, it is observed that the highest value among the countries/regions compared in female employment is seen in Poland, and TRC1 Region is similar to Egypt. With such an inference, the status of the region when compared to the country as a whole and the countries that are deemed to be similar with that in terms of employment and labour force is determined.

Figure 36: Distribution of the Labour Force by Gender in Chosen Regions (Thousand People)
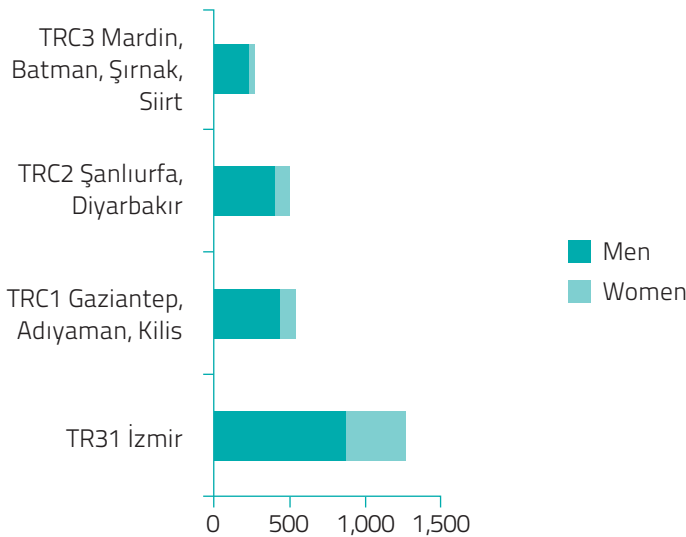
Figure 37: Share of Women in Employment in Chosen Regions
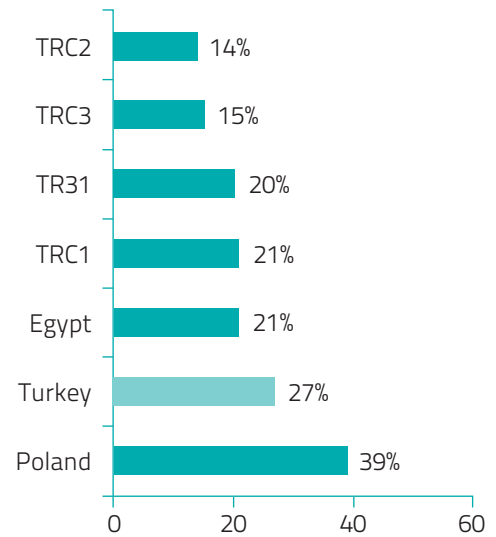
The determination of the education level and age distribution of the people who migrated is also important in terms understanding whether there is a problem of brain drain in the province. Education and migration statistics are analysed together in order to identify the level of the brain drain problem. As is seen in Figure 38, while the net migration rate for Izmir and Gaziantep is positive in all years, it seems that immigration is a significant problem for Sanlıurfa, Adiyaman and Kilis. It is advised to investigate the reasons of migration in provinces with the problem of immigration and produce analytical action plans by making assessments on the life quality in the province and incentive labour force demand.

Figure 38: Net Migration Rate by Selected Provinces (2011-2014)
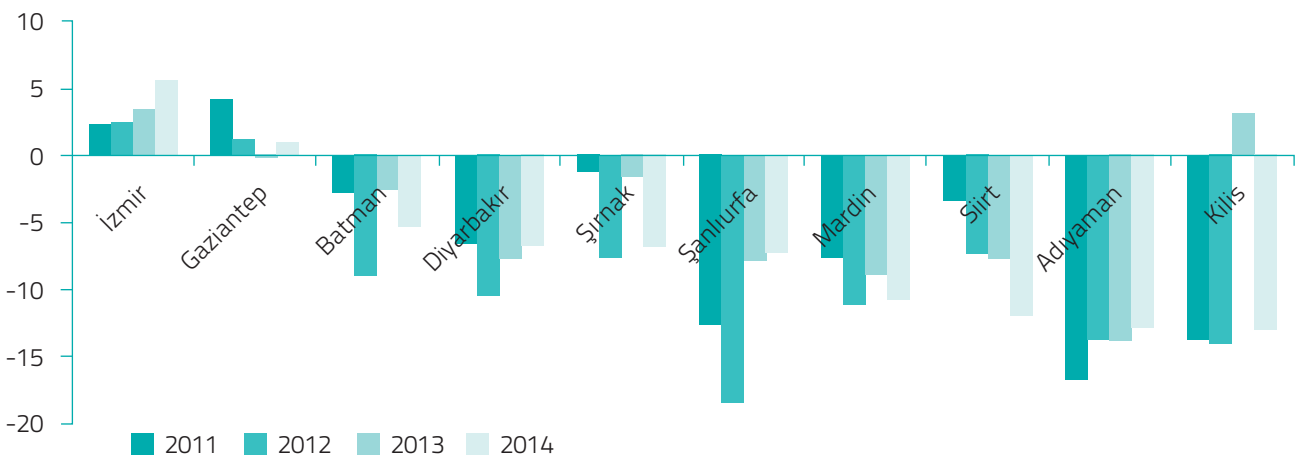
The educational and age level of the population is an important indicator for understanding the labour force potential in the province. Furthermore, the determinative role of education in the participation in labour force can be seen by making a comparison with the population considering the level of education of the labour force in the province. As an example for the determination of the labour force potential, three provinces in GAP Region are compared in Figure 39. According to the data, it is seen that graduates of primary school and elementary school make up the biggest portion of the population in all three provinces. Graduates of vocational higher school and faculty are the highest in Gaziantep. The number of illiterate people is highest in Sanliurfa. In the comparison of these three provinces, it is seen that people who can take part in higher technology production in terms of the level of education are in Gaziantep.

Figure 39: Education Level of the Population by Selected Provinces (2014)
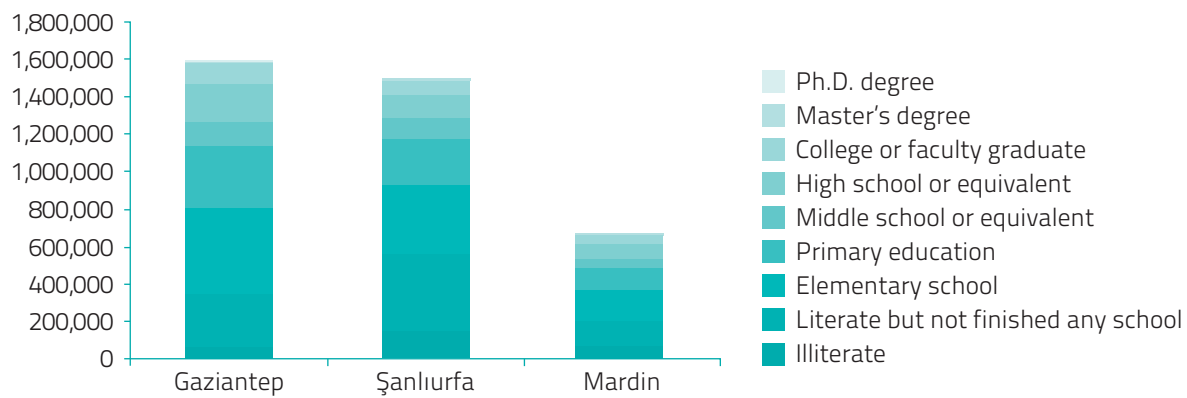
Source: TURKSTAT ABPRS

Foreign Language Level of the Population

One of the obstacles for provinces against exporting in the sectors where they are powerful is that the lack of people who speak a universal language such as English and languages such as Arabic and Persian that can be valid for especially bordering provinces in order to ensure the communication with countries with which business is done. The determination of the foreign language level in the province is important in this sense. While there is no declared data that measure the level of foreign language on the basis of provinces so far, it is possible to use the in-house works of British Council, OSYM or development agencies for data collection. For example, measuring the English scores in exams such as Foreign Language Examination (YDS) and Public Personnel Language Examination (KPDS) on a provincial basis and taking their average by the weight of the people who took the exams is a method that can be used in measuring English knowledge on a provincial basis. This data can be achieved through OSYM. Apart from this, gathering information on the levels of English language by ages in the language courses in the province is another method of achieving these data. These determinations allow the evaluation from the perspective of foreign language potential. From another perspective, the assessment of the foreign language skills of the employees by employers also provides input for the due diligence of the current labour force. Another method that requires a greater budget but can make a more extensive measurement is regularly making foreign language level measurement surveys for English and other languages. Apart from these indicators, it is possible to use such indicators as the number of the institutions that provide foreign language education on a provincial basis, the number of the schools where foreign teachers work, and the number and quality of private foreign language courses.

Profile of the Employed and Unemployed

In the analysis of labour market supply, it is beneficial to compare the profile of the employed and unemployed in the province both with Turkey in general and the competing provinces. While performing such an analysis, evaluations on
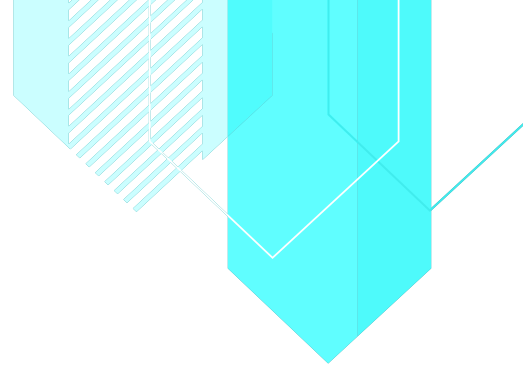
the profile of the unemployed are examined by associating them with the indicators defining the other profile such as age, education, etc. For example, the age distribution of the employed/unemployed profile was examined for TRC1 Region and Turkey. As an example, it can be said that "17% of the employed and 21% of the unemployed throughout Turkey consist of young people (15-24 years). And in TRC1 Region that includes Gaziantep, 21% of the employed, and 26% of the unemployed consist of young people. The share of the age interval between 35 and 54 years among the unemployed is higher both in TRC1 Region that includes Gaziantep and Turkey in general. Throughout Turkey, 10% of the employed, and 22% of the unemployed consist of individuals at the age of 55 and above. In TRC1 Region that includes Gaziantep, 8% of the employed, and 18% of the unemployed consists of individuals at the age of 55 and above. Both in TRC1 Region and throughout Turkey, the share of the middle aged is higher."

Figure 40: Age Distributions of the Employed and Unemployed in TRC1 Region (2014, %)

Source: TURKSTAT and TEPAV Calculations

In labour market supply analysis, it is important to identify the expectations of the employed and unemployed in that province from the labour market. It is possible to conduct a survey on the employees in the companies in the province and unemployed who are registered in ISKUR in order to identify the expectations. A sample representing the sectoral distribution in a particular province is chosen in the survey to be conducted on the employees. In the survey to be conducted, the satisfaction of the employees with the employer, their expectations from the labour market, the opportunities the employees have, wage policies of the employers and the satisfaction with the conditions of the labour market are examined. And in the survey conducted on the unemployed, the reasons of becoming unemployed, wage expectations of job seekers and their expectations from the labour market are assessed.

Student Profile

One of the important parts of labour market supply analysis is to reveal the student profile in a province. For this purpose, the profile of the regular high school, vocational high school, higher school of vocational education and university students are revealed. When making profile evaluation, indicators such as the level of success in various lessons, age distribution, gender distribution, education level of the parents, income level of the families, etc. are examined. With the surveys to be conducted on the students, their satisfaction with the training they receive, their satisfaction with the school where they study, and their expectations from the future and labour market are examined.

Labour Market Demand Analysis

The aim in labour market demand analysis is to reveal the labour force quality and amount that the institutions and companies in the region need. The production structure, employment structure and production potential of the region are related to these determinations as they are the main elements that create the demand. Thus, researches on the production structure, employment structure and production potential are made first in the below-mentioned stages for demand analysis.

- At the first stage, the expectations of the companies in the province from the labour force are revealed. First, the structure of the current employment is determined with the evaluation of the current data in demand analysis.
- Current data mentioned are collected from stakeholders such as TURKSTAT, TOBB, SGK and ISKUR, etc. mentioned in the labour force supply analysis. Furthermore, information on open job statistics and the developing/shrinking professions in the region can also be obtained from databases such as kariyer.net, yenibiris.com, etc.
- While the data on the employment registered in SGK database are present in the evaluation of the current data that TURKSTAT data include unregistered employment determined with surveys is among the aspects that should be taken into consideration.

Labour market supply analysis is supported with data collected through surveys. The most important output of demand analysis is the determination of the labour force qualities needed by local companies determining the labour force demand of the region. And the determinations in question are made using field researches and surveys that question the labour force qualities that are needed but cannot be measured with main indicators such as open job ads alone. Main indicators of the labour force demand and subjects on the region-specific labour force qualities needed are examined within the scope of the surveys. Some of the labour force demand main indicators that can be evaluated are open job statistics, developing-shrinking professions, the existence of skill mismatch in the employees of companies, opinion of the employers on skill mismatch, skill set properties of the region by the sectors, main skills of the labour force of the region, etc.

For the labour force demand modelling, the labour force demand model of the region is created by assessing the outputs of all studies that are carried out in a similar manner to supply modelling. UMEM (Specialized Vocational Training Centres)[3] Skill'10 Vocational Training Need Analysis Research Gaziantep analyses were used in general in the sampling of the survey research steps of the labour force demand modelling. Assessments and analyses that are suggested to be included in the labour force demand model of the province/region were shown by giving exemplary outputs from UMEM. The examples given aim to shed light on the works to be implemented using the toolkit. They are adapted into the survey research to be applied for the demand analysis in a similar framework province and region within the scope provided.

Data on provincial basis published by TURKSTAT are used in the first stage of the demand analysis. TURKSTAT has been publishing the data on the rates of unemployment, employment and the labour force participation on a provincial basis each year since 2008. In case no provincial data are available, data of Level 2 region where development agencies operate can be used. It is suggested to enrich these data with the data in other published reports, if possible.

It is beneficial to evaluate the main labour force indicators of the province with the comparison and ranking of Turkey.

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[3] Specialized Vocational Training Centres (UMEM) Skill' 10 Project" was started in 19 provinces at first within the scope of the protocol signed between Turkey Union of Chambers and Commodity Exchanges, Ministry of Labour and Social Security, Ministry of Education and TOBB Economics and Technology University (TOBB-ETU) for the purpose of solving unemployment that results from the supply and demand clashes in labour market. In the context of this project, it is aimed to achieve such targets as increasing the quality and effectiveness of vocational training, ensuring the employment of individuals exhibiting successful performance in education, performing sectoral and regional labour market need analyses, and increasing awareness in vocational training.
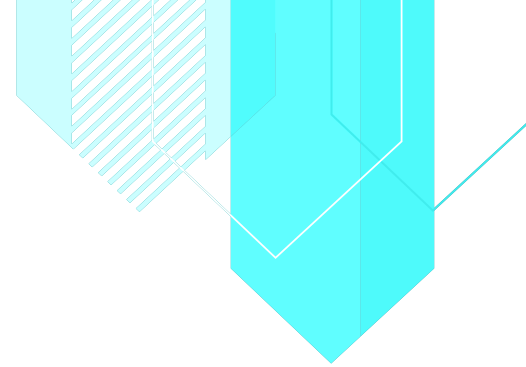
As is seen in the example given in Table 30, the ranking of Gaziantep province is given among 81 provinces in addition to the unemployment, employment and labour force participation rates in Gaziantep and throughout Turkey. In the ranking of Turkey, the unemployment rates of the provinces were sorted in ascending order, while the rates of employment and labour force participation were sorted in descending order. It is seen that unemployment is higher in Gaziantep than overall Turkey, while employment and labour force participation is lower. Upon examining the order between the provinces, it is realized that Gaziantep is close to last places among 81 provinces. The change of the number of employees and work places in the provinces are examined when preparing the Labour market Need Analysis province reports. For example, unemployment decreased a lot, and employment and the labour force participation increased in Gaziantep in 2013. In addition, monitoring the number of the employees and work places by sector is another method for examining the labour force indicators.

Table 30: Labour Force Indicators by Gaziantep and Turkey (2008-2010)

		UNEMPLOYMENT		EMPLOYMENT		LABOUR FORCE PARTICIPATION	
		Rate (%)	Turkey Ranking	Rate (%)	Turkey Ranking	Rate (%)	Turkey Ranking
2011	Gaziantep	14.4	79	37.2	74	43.4	70
	Turkey	8.6	–	46.2	–	50.4	–
2012	Gaziantep	11.2	71	39.2	72	44.2	70
	Turkey	8.6	–	46.1	–	50.4	–
2013	Gaziantep	6.9	35	43.6	60	46.8	63
	Turkey	8.6	–	46.1	–	50.3	–

Source: TURKSTAT

The method through which the sample is chosen is indicated in the first part of the report to be prepared, and the distributions of the companies in the sample by sector, scale and the number of employees are explained using graphs and tables. The profile (indicators such as gender, age, education status, profession, sector, scale of the company, etc.) of the employees in the companies interviewed should also be examined within the scope of sample information, and care should be taken for including the companies to which asking the labour force qualities sought would be meaningful into the sample. (For example, if there is a question on the foreign language demand in the employees, companies that especially operate in international activities or that perform foreign trade are included within the scope of the sample.)

In the next stage, overall Turkey is compared with data on provincial basis. At this stage, data derived from the field study can be enriched with the data to be taken from the Development Agency, SGK, TURKSTAT, TOBB and ISKUR. The comparison with the foreign countries and regions that are deemed to have similar properties with the region may help determining the labour force potential of the region. The comparison of the data of the employees and the unemployed will be beneficial in terms of examining the reasons of the problem of unemployment. Survey outputs in Province/ Region labour force demand analysis reports can be compared with overall Turkey, as well as different research results that include similar subjects. For example; the conclusion obtained from the evaluation of UMEM Skill' 19 survey results (Figure 42) is that almost half (49.2%) of the employees throughout Turkey is at primary education level or below, and this rate is 65% in Gaziantep. And the results of UNDP-GAO Investment Climate survey show that the education level of company workers across 4 regions is mainly at regular high school level.

Figure 41: Distribution of company workers by education status (%)

TR31: 35, 34, 13, 10, 9
TRC3: 41, 29, 16, 9, 5
TRC2: 36, 32, 17, 8, 8
TRC1: 39, 13, 34, 10, 5

Legend:
- Regular high school
- Primary education and less
- Vocational high school
- Vocational college
- Bachelor's degree and above
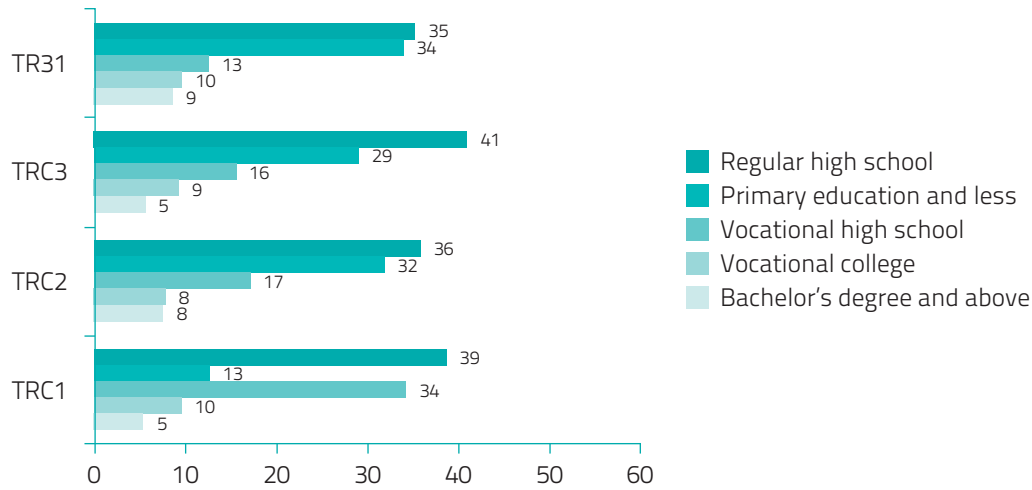
Source: UNDP –GAP Investment Climate Survey 2012, World Bank Investment Climate Survey Database

Figure 42: Distribution of company workers by education status (2010, %)

Primary education and less
Regular high school
Vocational high school
Vocational college
Bachelor's degree and above

Legend:
- Turkey
- Gaziantep
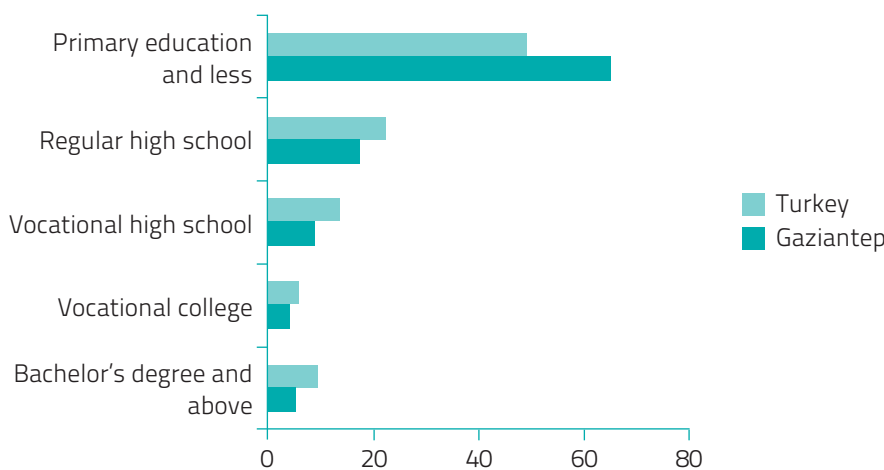
Source: UMEM Skill'10 Surveys

Another subject that should be assessed in labour force demand is the relation between the level of education and the satisfaction with the employees. This subject is a perception–based measurement as mentioned previously, and investigated through surveys. UMEM 2010 research output shown in Table 31 can be examined as an example for the research of the subject in question. Indicators that are deemed important for the analysis are given together and the relationship between them are emphasized while creating the table. For example, that the satisfaction with the employees increases as the level of education increases is an observation that the table shows at first sight. An example of an interpretation that goes one step deeper is the observation that the segment with the lowest employee satisfaction consists of people who are employed after finishing various vocational training courses organized by the public, private sector and NGOs. Furthermore, that the rate of the companies that find the graduates of vocational high schools and vocational schools of higher education ready for their work is low, and that the highest satisfaction with the employees is with university graduates are other interpretations that can be inferred from Table 31. As the level of satisfaction in fresh graduates shows whether the education system provides the necessary skills to the labour force, it is also important in terms of being able to determine at which step of the education system problems occur. For this reason, it is beneficial to discriminate between fresh graduates/senior workers when assessing the employees.
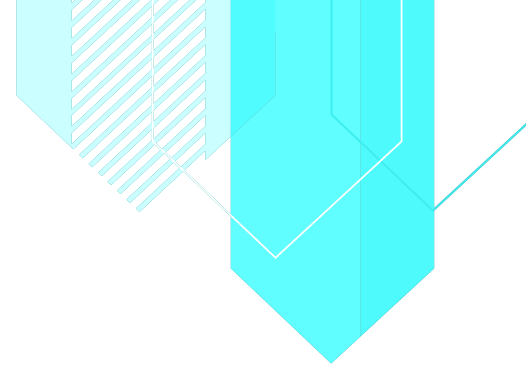
Table 31: Level of Satisfaction with Fresh Graduates of the Companies in Gaziantep (%, 2010)

EDUCATION INSTITUTION WHERE THE EMPLOYEES GRADUATED	NOT PREPARED	PREPARED, BUT NOT SUFFICIENT	PREPARED
Regular High School	38.7	31.4	29.9
Vocational High School	31.5	38.8	29.7
Vocational College	33.0	34.5	32.5
University	27.0	24.3	48.7
Vocational Training Courses	57.3	32.2	10.5

Source: UMEM Skill 2010 Surveys

Making inferences by classifying the professions by qualification ensures that the qualifications of the labour force demanded are healthier. According to ISCO 08 classification, which is an international classification standard in vocational classification, codes starting with 2000 shows professional occupations, and codes starting with 3000 show associate professional occupations. Codes starting with 9000 show workers of elementary occupations. An opinion can be formed about the qualification level of the employees by examining whether elementary occupations are among the first 10 occupations. Apart from this, whether the sectors with the highest share create employment or not can be questioned by interpreting Table 32 with the sector distribution table.

Table 32: Occupation Distribution of the Company Workers in Gaziantep

ISCO 08 CODE	NAME OF OCCUPATION	NUMBER OF EMPLOYEES	RATE (%)
7533	Sewers, embroiderers and related workers	15,300	6.6
7212	Welders and oxy-gas flame cutters	12,788	5.5
7223	Machine-tool setters and setter-operators	11,889	5.2
3115	Mechanical engineering technicians	9,470	4.1
5223	Shop sales assistants	8,484	3.7
5242	Sales demonstrators	8,411	3.7
8159	Textile, fur and leather-products machine operators	7,493	3.3
5131	Waiters	6,392	2.8
3119	Physical and engineering science technicians	4,120	1.8
4419	Clerical support staff	1,314	0.6
TOTAL		230,421	100

Source: UMEM Skill 2010 Surveys

The perceptions of the employees which are among the significant factors in labour force demand is among the subjects that will be examined within the scope of the research. The employers interviewed in the companies are asked whether they are satisfied with their employees, and employer perception is examined from various aspects. Satisfaction with the employees can be asked on the basis of education status and occupation by further elaborating. The main reasons for the dissatisfaction with the employees in companies (if any) are investigated, and whether this constitutes an obstacle against companies' achieving their targets is examined. "Skill mismatch" concept, which is another measure of dissatisfaction of the companies with their employees, is examined in the surveys carried out. If there is skill mismatch, information is obtained about its reasons and consequences. In addition to full time workers in the companies, satisfaction with part time workers and interns are also among the subjects to be investigated. In case of low satisfaction, its reasons are also examined. For example, Figure 43 shows that employer satisfaction decreases as skill mismatch increases.

Figure 43: Distribution of Skill Mismatch and Employer Satisfaction by the Education Status of the Employees in Mugla (2010)
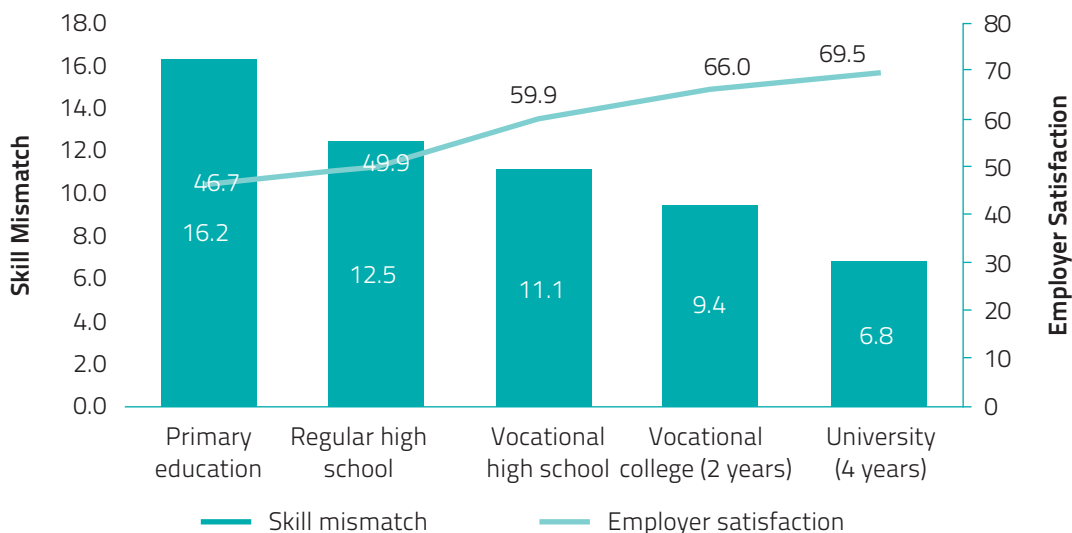
Source: SKILL'10 Mugla Survey and TEPAV Calculations

Satisfaction with the employees is inversely proportional with high expectations from the employees. In addition to this, the performance of the employees is also closely related to the conditions of the company. It would be beneficial to look at the wage given by the company to its employees and the relationship between the staff turnover rate and skill mismatch in order to objectively assess satisfaction with the employees.

Another subject that the labour force demand model must include is the open position status. The companies should be asked in which positions/occupations there are job vacancies within the scope of the surveys to be applied. It is beneficial to keep these data collected through surveys in a database that is accessible to development agencies (Openings Database). Open position statistics are shown on a sector and scale basis. Table 33, which shows the positions that are represented by the most companies in the sample and the first 10 open positions by scale, constitutes an example for this.

Table 33: Most Demanded Occupations (Gaziantep, 2010)

NO	OPEN POSITIONS	NUMBER OF STAFF DEMANDED	RATE (%)
1	CNC Machine Operator	521	7.6
2	Quality Inspector	486	7.1
3	Marketer	382	5.6
4	Machinist (Sewing)	303	4.4
5	Gas Metal Arc Welder	210	3.1
6	Mechanical Maintainer – Repairer	177	2.6
7	Presser	98	1.4
8	Turner (Lathe Operator)	79	1.2
9	Welder (Oxygen and Electricity)	60	0.9
10	Weaver (Weaving Machine Operator)	33	0.5
TOTAL		6,854	100

Source: UMEM Skill 2010 Surveys
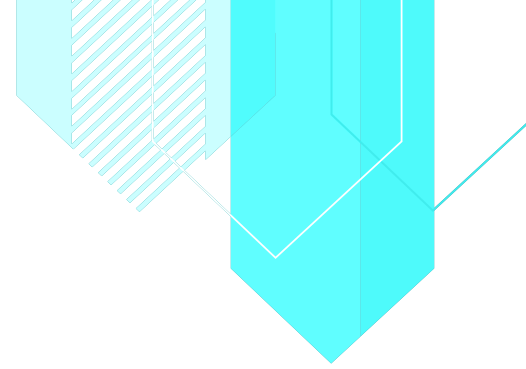
Companies are asked for their employment plans for the subsequent year in order to assess the current open positions and estimate the open positions that will emerge next year in the determination of labour force demand. In addition to this, employers are also asked for information on the occupations that companies have hardship in finding employees in the labour market. Subjects such as the distribution of these occupations by the sectors, the reasons for the failure to find staff in these occupations, and the need for training in these occupations, if any, can also be examined. While investigating the labour force demand, the rate of the companies that consider increasing or decreasing their number of employees is tried to be determined in the information to be collected from companies on the future. It is possible to make estimations on the employment increase or decrease in the mentioned occupations by asking the companies that plan making changes in their number of employees to which occupation groups these plans apply. In the subsequent stage, more detailed information is obtained on the developing-shrinking occupations by comparing the skill mismatch in the occupations mentioned through the estimations made, and general information on whether a hardship will be encountered in supplying employees in these occupations is emphasized. The presentation that can be used in the labour force demand model to be created is shown in Table 34.

Table 34: Occupations the Employee Number is Expected to Increase in the Next Year (Gaziantep, 2010)

NO	OCCUPATION	NUMBER OF COMPANIES	RATE IN TOTAL (%)	SKILL MISMATCH IN THIS OCCUPATION
1	CNC Machine Operator	520	7.6	67.8
2	Quality Inspector	486	7.1	46.3
3	Marketer	382	5.6	32.7
4	Machinist (Sewing)	302	4.4	51.5
5	Gas Metal Arc Welder	209	3.1	67.8
6	Mechanical Maintainer – Repairer	176	2.6	43.8
7	Presser	98	1.4	12.4
8	Turner (Lathe Operator)	79	1.2	54.2
9	Welder (Oxygen and Electricity)	59	0.9	35.0
10	Weaver (Weaving Machine Operator)	32	0.5	19.5

Source: UMEM Skill 2010 Surveys

In addition to the questions aimed at revealing the present situation, it is also important to ask employers in which occupations they will need staff in the future. Thus, it is possible to make short-middle term demand estimations in future years with the data to be obtained by repeating the analyses each year regularly. In addition to this, input is provided to make long-term estimations of rising occupations by asking the employers in which occupations they see more future (in their sectors). The analyses that can be performed using the survey data and present data are not restricted to those explained in this part. Analyses can be increased as required.

Field Work for Labour market Supply and Demand Analysis

Special survey are prepared and implemented for data that can be needed while performing labour market supply and demand analysis, apart from the present data. These data are collected using the surveys to be performed with companies, employees, the unemployed and students. Detailed information about the processes of field work will be given in this part of the toolkit.

Analysing the labour market supply and demand and creating effective regional competitiveness policies in the light of the analysis results are only possible by collecting and analysing the data regularly. Thus, it is beneficial that the data collection process is carried out periodically and analyses advance in the light of these data. What is important here is to correctly shape the timing and process design of the surveys. In order to be able to use the analysis of the data regularly collected from the labour market in the design of the competitiveness policies, structural properties on the supply and demand structure of the labour market should be known. Revealing the structural and constant properties on the market and placing it in the middle of the analysis create a basis for obtaining healthier results in order to make analysis and give meaning to the results.

It is advised that the survey to be used in the supply and demand analysis of the labour market is prepared by development agency specialists. It is beneficial for the development agency to examine the surveys previously used both in Turkey and abroad in similar works. It is very important to carry out a pilot work in order to test the consistency and validity of the survey to be prepared. It is necessary for the survey to be prepared in as much as a brief, clear and fluent manner. It is necessary for the surveys that will be used in labour market supply and demand to be aimed at the answers of the information built specially for the region (examined more in–depth according to the need of the region) in addition to such information as;

i. Structure of employment: Gender, education and age distribution;
ii. Employment tendencies: Last year, next year;
iii. Perceptions on the interns;
iv. The preparedness of the graduates for work, skill mismatch, average working period and their average wage by education institutions;
v. General skill mismatch perception;
vi. Worker distribution and tendencies by occupation, skill mismatch, reasons and consequences, skills that are perceived as being lacked;
vii. Openings in companies;
viii. Company profiles;
ix. Expectations of the employees from the labour market and their satisfaction;
x. Reasons for unemployment and the expectations of the unemployed from the labour market;
xi. Satisfaction of the students with the institutions where they study and their expectations from the labour market.

Choosing the sample to be used in field work correctly is important in terms of the reliability of the research carried out. While choosing samples both in labour market supply analysis and demand analysis, the scale and sector distribution in the province is taken into consideration. SGK and TOBB (Union of Chambers and Commodity Exchanges of Turkey) are used in the sampling work of the labour market need analysis. Information on all enterprises are included in SGK (Social Security Institution), and information on industrial institutions that take a capacity report are included in the industrial database of the Union of Chambers and Commodity Exchanges of Turkey (TOBB) by the size of the companies and workers, and in sector division. Furthermore, the information on the companies other than manufacturing are also included in TOBB. It is advised to investigate the services and industrial sectors separately in the analysis work. However, data in the industrial and service sector are examined together for certain analyses. Thus, grouping the lists in both databases in the same way allows for making integrated analyses. The scale of the company[4] is taken into consideration when creating a sample within the scope of the labour market need analysis. For example, it is possible to choose two different samples in the companies that employ 10-49 workers and more than 50 workers considering the sectoral distribution. Thus, only the small–scale enterprises are included in the first sample, and medium and large scale enterprises are included in the second sample. It is necessary to calculate two different samples for the industry

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[4] According to Article 5 of the "Legislation on the Definition, Properties and Classification of Small and Medium-Sized Enterprises", less than 10 people work in micro enterprises, 10-49 people work in small-scale enterprises, 50-249 people work in medium-scale enterprises, and more than 250 people work in large-scale enterprises.
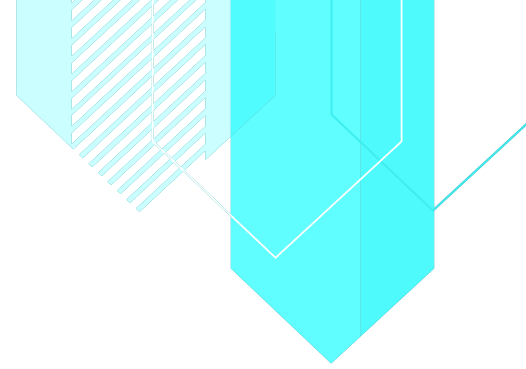
and service sectors while performing labour market need analysis. It is possible that the sample sizes that will be formed around the province results in 2% of error margin by calculating each sample according to 5% error margin.

After determining the sample sizes, the sample size by subsector is determined in the provinces using the stratified random sampling method according to the subsector distributions of the industry and service sectors. Survey is applied to at least 30 companies on the basis of subsector in order to obtain statistically significant results. The companies to be conducted survey are chosen in each sector after calculating the sample sizes by subsector using the stratified sampling method. Systematic sampling method is also used in the process of choosing companies by the size of the sample in the subsector. With this method, a backup company list is formed by choosing the companies below or above the chosen companies. The companies chosen as backup should reflect the properties of the actual companies. Thus, four different samples are created in total, two for each of the industry and service sectors.

It is possible to use the records of SGK for employees in the sample study of the labour market supply analysis, ISKUR records for the unemployed, and MoNE and YOK/OSYM records for students. The sectoral distribution in the province is taken into consideration in the sample to be created for the employees. Only ISKUR records are used in the sample to be created for the unemployed. Considering that all of the unemployed are not registered with ISKUR, it should be noted that there will be a segment that will not be covered in the study to be made with the sample created with ISKUR records. A sample that will represent regular and vocational high schools, vocational schools of higher education and the departments at the university should be created in the sample to be formed for the students. The sample size to be formed for all three researches is chosen with maximum 5% margin of error at the confidence level of 95%. Choosing the sample with an error margin of 2% or 3% as long as time and financial restrictions allow increases the reliability of the study.

TOBB Industry Database, TOBB company list and company information from SGK should be obtained in full in order to be able to determine sample sizes correctly in labour market need analysis. In order to perform sampling correctly, it is important that the contact information in company lists are updated and faultless. Company information are checked considering the records of TOBB and SGK before starting with the field work after creating the sample; if any, changes are updated. It is beneficial to work meticulously in field works performed with noncurrent company information as serious problems may occur. Field works can be affected by various factors and the possibility that they last longer than expected is high due to unforeseeable reasons. For this reason, it will be add a particular deviation rate for the field section of the project plan. It is advised to determine two sample sizes being in the distinction of 10–49 and 50+ in the sectors of industry and service after the development agency experts check and verify the format of this data.

It is advised that labour market supply and demand analyses performed by means of the surveys to be conducted in field work, and face-to-face interviews with companies, employees, the unemployed and students. The survey is conducted under the coordination of the specialists appointed by development agencies. The field work can be carried out by establishing a team of interviewers with no employees, as well as by means of the method of outsourcing. It is important to work with people who have experience in survey and field works in both cases. Furthermore, the interviewers are provided training that includes all the details of their duties on the research. It is important that there are field supervisors who will monitor the interviewers and check the surveys conducted, and that these supervisors have the capability to manage the interviewers, and interfere with them when necessary.

The scope of the training to be given to the team that will conduct the survey before starting with the field work should be in the form of a detailed information that includes the labour market analysis, surveys to be conducted, field applications, the ISCO 08 occupation codes to be used in the field and NACE Rev.2 sector codes. Possible problems that may occur are determined by evaluating the results of the pilot work to be implemented after the training given. Precautions are taken on these problems. The process of field work is constantly checked by the field supervisor. The

surveys conducted are constantly checked, and the interviewers are warned about such subjects as unasked questions, incomplete answers, and logical errors in the answers, etc.

There are few questions on industry and service sectors in the questionnaire forms to be applied to the companies in these sectors in the labour market demand analysis; the forms are similar to a great extent except for this. Similarly, there may be special question by the status of work in the surveys to be applied to the unemployed and students, as well as mutual questions in all three surveys.

Background Studies and Assessment

The development of Turkey in the recent period and the transformation process that it goes through swiftly changes the whole economy, as well as the labour market. Thus, it is necessary to closely monitor the current status and dynamics of the labour market in terms of regional competitiveness at the local and national level. That development agencies are alone in a sustainable monitoring system design complicates an effective process monitoring. Thus, it is very beneficial for development agencies to cooperate with such institutions as ISKUR Provincial Directorate and Chambers of Trade and/or Industry in order to analyse the labour market. This mechanism is more effective in terms of easier access to the employer and feeling the pulse of the sector especially in industry and service sectors.

Development vision and competitiveness of the regions are determined with the participation of local actors. In this sense, the importance of the cooperation with the local actors is obvious within the scope of skill set analysis, which is an important output of the competitiveness agenda. Local dynamics (population growth of the region, consumption structure of the region, production structure of the region, etc.) and the developments in the region are effective in the process of determining the development vision and competitiveness of the region in the context of labour power. It is possible to ensure the participation of local actors by making assessments on the development vision and competitiveness of the region from the perspective of the labour force by organizing periodic stakeholder meetings with such local actors as the chambers of commerce and industry in the region that are affiliated to TOBB, ISKUR Provincial Directorates, education institutions in the region, and prominent business people of the region that can be organized under the leadership of the development agencies.

Dynamic analyses that provide current information are proceed to from stable analyses by implementing the labour market need analysis model at local/regional level in a sustainable (periodic) manner. By means of making labour force demand projections that include the data of many years, a more extensive analysis of the market will be performed, it will be easy to make the labour force supply and demand coherent, and important input for regional competitiveness will be provided. Performing local analyses in our country where important regional differences are observed is necessary both in terms of monitoring these differences, providing functionality to local management mechanisms and developing regional competitiveness. In addition to this, the reasons of the labour market analysis are necessary in order to harmonize labour market supply and demand at local level, make estimations for the upcoming years and analyse the effects of the policies implemented.

The development of the region's skill set also affects other tools that make up the competitiveness agenda directly. Skill set is associated with the value chain, enterprise ecosystem, innovation ecosystem and investment environment at first level. For, human resource is one of the important inputs in value chain analysis. Human resource and the qualities of the labour force in the region shape the entrepreneurship and innovation ecosystem, and the investment climate in the region varies develops depending on the harmony of the labour force supply and demand. The secondary factors that are one level outside the chain are Life Quality, Connectivity, Export Performance and External Economic Environment Analyses. While the relationship between these tools and skill set is also important, the interaction is weaker when compared to primary factors. For example, while the skill set affects the qualitative increase/decrease of

the labour force supply of a region as an output rather than an input, the connectivity allows for the labour force mobility in the region. And while the external economic environment can be interpreted as a descriptor of the labour force mobility once again, the effects of labour force profile are observed in the increase/decrease of the export performance.

Figure 44: Skill Set - Competitiveness Tools Impact Scheme
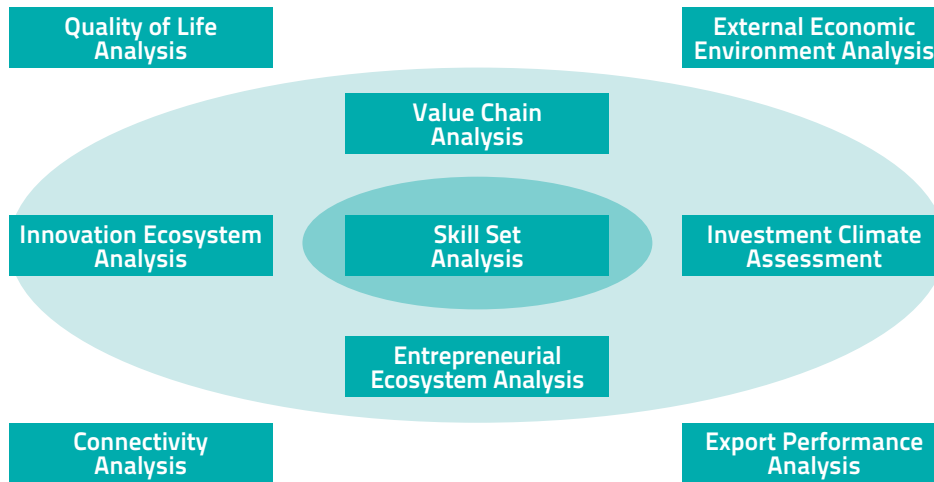
Source: TEPAV Compilations

The findings that will be found in skill set analysis can be supported with detailed background studies. As background studies;

    i.   Investigation of the effects of employment policies on the labour market of the region: It is important that policies that are found to create positive effect are rendered sustainable with this study.

    ii.   Investigation of the effectiveness of ISKUR and private employment agencies in the region: It ensures the understanding of the effects of local institutions in the labour market on employers, employees and present labour force.

    iii.   The determination of qualitative human resource required by the change of economic structure: It enables making detailed determinations on the labour force properties needed.

    iv.   Investigation of the effectiveness of vocational training: It enables the development of education policies on supporting the professions demanded by examining the quality of vocational training with this study.

5. CONNECTIVITY ANALYSIS

5. CONNECTIVITY ANALYSIS

Table 35: Connectivity Analysis Summary Table

Purpose of Use	Analyse the quality, diversity, cost and financing features of connectivities in regions, and contribute to the content of policy dialogue between the central government and agencies
User Profile	Experts in economy and transport
Method	Identify the connectivity priorities of the region according to its current situation and sectoral priorities, identify and analyse indicators appropriate for these priorities
Potential Outputs	1. İdentify connectivities of provinces in the regions 2. Formulate policies and strategies to enhance connectivities 3. Propose projects that will contribute to increased connectivities and reduced costs for the regions
Relevant Entities and Stakeholders	Ministry of Transport, Maritime Affairs and Communications, Ministry of Development, TURKSTAT, World Bank, OIZs, logistics companies and other companies
Critical Issues	1. Connectivity analysis on regional and provincial basis is limited 2. Data are insufficient to develop connectivity index for the region and provinces.

Connectivity is one of the critical elements of the competition level and economic development and quite important in determining the agenda of regional competitiveness. Indeed, World Bank 2009 Development Report that defends that the main elements of development are connectivity and skill set also focused on geography and connectivity. This relationship between connectivity and economic development, which were not taken into consideration much previously, is a subject that has been increasingly brought to agenda after this report.

World Bank published another report in 2012 that examines the competitive level and the connectivity of the regions that are economically developing with regard to this subject that attracts more and more attention[1]. Accordingly, the more the connection of a country with global economy, the bigger inequalities between regions especially in developing countries. While places with high connectivity and economic activity can develop economically at international trade level, places with weaker connectivity fail to benefit the gains of trade and turn into "lagging region". For example, following North America Free Trade Agreement, the regions in American border in Mexico developed three times more than the places that are far from the border and a significant increase was observed in inter regional inequality.[2] For these reasons, developing the connectivity of regions increases the share that these regions will take from the economic development of the country and thus reduces inter regional inequality.

A developed connectivity increases the access of that region to different markets and ensures the variation of the customers. In addition to this, the competitiveness of a province in any sector is directly related to the costs of that province in transmitting its products. While high transportation and communication costs decrease the competitiveness in the sector by increasing the cost, that these costs are lower when compared to other provinces provides a big price advantage to provinces. Furthermore, passenger transportation is an important criterion in developing human resource. In addition to these, a developed connectivity plays an important role in attracting the investments and investors to the region.

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[1] World Bank (2012). *The Internal Geography of Trade Competitiveness: Lagging Regions and Global Market*.
[2] Farole, Thomas (2012). Competitiveness and Connectivity: Integrating Lagging Regions in Global Markets. *Economic Premise (World Bank)* 93

Box 12: Effect of railway on competitiveness: Chongqing Example

Chongqing, which used to be a very underdeveloped region of China in terms of industry and trade before 1970s, was mainly engaged in the sectors of textile, paper and mining in 1950s. The railway network that developed since 1987 completely changed the economic structure of the city. After the railway connected the city with other regions, Chongqing Advanced Technology Development Region was established in 1993. In subsequent years, the constantly developing railway network increased the connection of the city with other regions and played an important role in economic transformation: in 1990s, Chongqing specialized in machine, electricity, chemical products and automotive sectors. The city that had a population of more than 30 million people was able to surpass big cities such as Beijing and Shanghai in the growing rates of the first half of 2012. Furthermore, the city also started railway trade with Germany as of 2012. Chongqing that was always below GDP per capita per country from the 19th century to 1980s was able to increase its income much above the per capita GDP of China despite the increasing population with the development of the railway network (Figure 45).
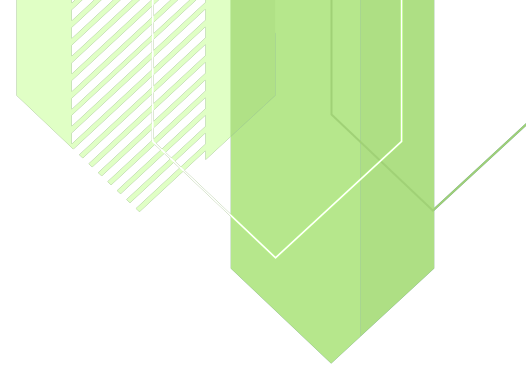
Figure 45: Per capita GDP for China and Chongqing city, 1978-2007
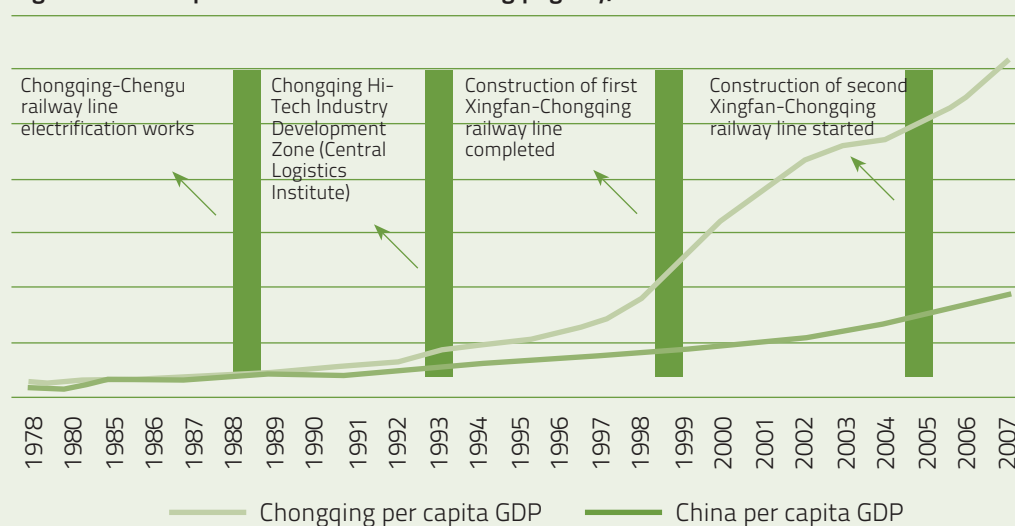
Source: China Statistical Institute

Connectivity analysis aims to identify the bottlenecks by examining all connection types with all actors that will affect the level of competitiveness of a region or province and their effectiveness. In this analysis, it is aimed to examine the connectivity with the places that are located or have the possibility to be located both inside (with remote districts and villages) and outside the economic surrounding of the regions or provinces. It is aimed to identify different types of connection with these regions and analyse the effectiveness of each type when examining the connectivity with these places. This way, the bottlenecks in creating the connection are determined, and programs and strategies aimed at these bottlenecks are prioritised. Furthermore, it is also compare the analysis results in provinces or regions that are competed or have similar geographical and economic properties. Thus, it is ensured that the points that constitute the real problem at connectivity. For example, the comparison of the results obtained in the analysis of a connectivity analysis aimed at Diyarbakir with Gaziantep that is geographically close to it in geographical terms facilitates the realization of the bottleneck that one of these provinces encounter and the other does not, and developing the strategies focusing on this.

One of the critical steps of the connectivity is to identify the places that are aimed to make a connection. Some of the places that will be connected with in order to increase the competitiveness consist of remote districts and villages in

the province and region. Apart from these, the connection with the economic environment is important in terms of the competitiveness of the region or province. National and international economic partners of the province or region and potential partners that will be important in terms of the economic development of the region will be determined by benefiting from the external economic environment analysis section in this toolkit.

After determining the critical partners, the connection routes and modes with these partners are identified. At this point, the types of connection modes to the place desired to be connected and the transition amplitudes between different modes are being examined. The first thing to do in this context is to map the connection modes between the points of origin and destination. While doing these, the railway, airway, maritime and road opportunities between nodes, their length, transfer points between them, and any kind of transportation (intermodal) opportunities with logistical villages are examined. Mapping and analysis can be performed by development agency specialists, and the studies previously prepared by various institutions can also be used. While basing the identifications on the connectivity only on maps provides a general outlook, it may lead to the overlooking of certain weaknesses or strengths about the connectivity. Thus, mapping should be supported with a detailed analysis.

It is necessary to examine the present condition of use and potential of each of the connection modes in the routes identified. The determination of a connection mode between two places does not always mean that this mode is used actively at all times. For example, the presence of an airport does not mean that this airport is used for freight transportation. For this reason, the operability of the connection modes identified should be examined. For this purpose, the activity states of these modes (for example train and airplane flight numbers) and the rate of these modes to be used in this region (for example, the amount of cargo carried on each connection mode for cargo transportation) are examined. Furthermore, it is also beneficial to examine different service providers in the routes identified and their activity rate. In this context, the logistics companies providing service in the routes identified, their effectiveness and their rate of use by the actors in the region are examined. It is possible that the data about this are supplied by logistics companies. Furthermore, there are questions about the methods of ensuring domestic and foreign logistics of companies in Investment Climate Assessment Surveys. These questions form an important data source in this respect (see Box 13). In addition to these, new investments made on the connection modes on the routes identified also constitute an important source on the potential connectivity of these regions. On the other hand, the comparison of the elements in question with the average of Turkey and similar provinces provides an opinion on how the route examined is important in the region.

Box 13: UNDP-GAP 2012 Investment Climate Assessment Survey Data Logistics Assessment

There is a question on how companies ensure logistics in domestic and foreign trade in UNDP-GAP 2012 Investment Climate Assessment Survey. Accordingly, while the major part of the companies in domestic trade declares that they ensure logistics with their own vehicles, it is seen that service purchase from national and international logistics companies is very low. While this may the result of the fact that the companies in the region do not prefer logistics companies due to reasons such as cost, it may also result from limited activities in these regions. Thus, it is possible to make an in-depth research on the reasons of this situation using the results of the survey. Still, sample properties of UNDP-GAP 2012 Investment Climate Assessment Survey should be taken into consideration while performing this analysis. As is mentioned in the Investment Climate Assessment tool, the sample in these surveys represent micro companies more, and the rate of use of logistics companies can actually be lower than medium and large scale companies. For this reason, the rate of use of logistic service providers by medium and large scale companies should also be determined in the in-depth examination to be made.
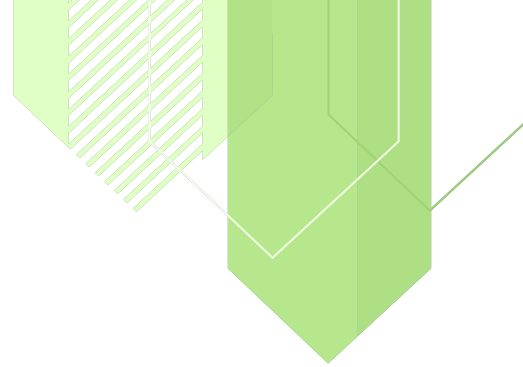
The determination of the cost, duration and quality of each connection mode present in the routes of the company are critical elements that will contribute to the understanding of the connectivity of the place investigated. Another critical factors determining the connectivity of a particular place is the effectiveness of the connection modes there. Thus, it is necessary to understand the cost, duration and quality of each connection mode.

- **Cost:** It includes all the expenditures made when transporting the production factors or end product from a place to the region or from the region to another place. While costs are examined, costs such as harmonization of the transportation legislation in addition to transportation expenses, waiting in transfer areas, etc.
- **Duration:** It includes all the time spent when transporting the production factors or end product from a place to the region or from the region to a place. The duration of transporting from a place to two places is affected by many factors. The distance between two places, the existing connection methods between two places and their development status, being waited for reasons such as legislation or customs while performing transportation are some of these factors.
- **Quality:** The quality of the connectivity of a place can be related to the status of the substructures of the types of transportation used there, as well as the status of the means of transportation used there. Some of the important elements in the quality of the connectivity are the comfort in transportation, whether transportation is performed in line with product standards, indicators such as breakage, spoilage during transportation, and the security level of the connection mode.

Which one of these factors that determine the effectiveness of connection modes and which one to prioritise in strategy development vary by the existing connectivity of the region, connection modes used, and for what and whom the connection is provided. When connection is provided for the transportation of a product, the prioritisation of these indicators mentioned for the transportation of the milk and textile products will have to be prioritised. For example, while the duration and transportation in cool environment are prioritised criteria for milk transportation, costs are more prioritised criteria for the transportation of textile products.

It is necessary for development agencies to collect data proactively in order to understand the cost, duration and quality indicators that are important for the examination of the connectivity. While many institutions such as General Directorate of Highways, Ministry of Transport, Maritime Affairs and Communications provide data on existing connection modes and their length, the indicators of the duration, cost and quality of the modes are inaccessible. It is possible that the data collection process for these indicators that bear great importance for the understanding of the connectivity is carried out by agencies. A method for doing this is to collect data using surveys and face-to-face interviews to be carried out with global, national and local logistics companies and companies that use product transportation. Furthermore, it is also necessary to ensure that the changes in these subjects are monitored by systematizing this data collection. There are a few questions on this subject in UNDP-GAP investment climate surveys. An opinion can be obtained by means of these questions, but it is necessary to perform in-depth data collection to understand strengths and weaknesses.

The connectivity of a region is closely related to the existence of alternative routes that this place can be connected to other places and the variety of connection modes. High variety allows different actors with different priorities to choose a connection route that fits their own priorities. Furthermore, it prevents losses by giving the opportunity to benefit from different routes in case a route used becomes non-functional for reasons such as occlusion or losing its importance. The analysis of alternative routes is performed by examining the types of transportation from the region to destination, areas of transfer and different combinations between them. For example, it is possible to carry a product transported from Gaziantep to Europe from Istanbul then to Europe by road. On the other hand, that there is the alternative to carry a product originating from Gaziantep due to increasing intensity in Istanbul to Mersin port by road, and then to Europe by sea will be very important for preventing hindrances. Again, finding alternative routes in case Syrian route used in the access to Gulf countries is hindered prevents the hindrances that may occur in the trade with the region.

The connectivity of the opportunity set in a particular region may be different. Thus, it is beneficial to separately examine the connectivity of each opportunity set identified. The connectivity of a particular place may have different meanings in terms of product transportation, service delivery, human resource and investments. The connection modes that these elements among important determinants of the competition level of a particular place may be different from one another. Although the connection methods that are effective on these elements may bear similarity, the examination of the prominent factors on each of them is important in terms of understanding the connectivity.

Figure 46: Steps of Connectivity Analysis

	STEP 1	STEP 2	STEP 3	STEP 4
Routes and Modes	**Connectivity analysis in terms of goods transport**	**Connectivity analysis in terms of passenger Connectivity analysis in terms of**	**Connectivity analysis in terms of access to communications**	**Review of indices and derivation of new data**
Cost	1. With districts and villages	1. Passenger transport between surrounding provinces, districts and villages a. Transport methods analysis b. Density index	1. Analysis of communications infrastructure a. Internet b. Mobile phone c. Phone	1. SEGE connectivity subindex
	2. With neighbouring and remote provinces (Access to intercity transfer centres)	2. Passenger transport between domestic and non-domestic centres		2. Logistics Performance Index (LPI) and LPI's provincial application
Time	3. With global markets		2. Use of communication means by firms a. Trade b. Services	
Quality	4. Assessment of firm's network relations	a. Fast train capacity b. Access to and capacity of air transport		3. TEPAV Connectivity Index

Source: TEPAV Compilations

Connectivity Analysis in terms of Goods Transport

Product transportation is an important part of manufacturing and trade sectors, and the requirements in product transportation change depending on many factors such as the quality of product, transportation distance and type of transportation. Making transportation effectively and at low-cost in order to achieve competitive advantage, increases the competitive level by reducing general costs. The connectivity at the stage of producing a product is first important in terms of the supply of raw materials and intermediate products. In addition to this, connection methods affecting product transportation for the distribution of the intermediate products or end product to the next producer and end consumer will also be determinative. However, elements such as the conditions needed during the transportation of a product (such as the need to transport in a cool environment) and from which place to which place the product is transported (to nearby provinces or abroad) affect the connection requirements of that place, and these should be taken into consideration when performing connectivity analysis.

It is possible to examine the distance between two places, among the factors affecting the transportation of the

products, by dividing it into two categories, being domestic or abroad. While certain factors have great importance within the province, they do not factor the transportation between the provinces or countries at the same level. Thus, connection analysis is examined as the connectivity within the province itself, the connectivity of the province or region with surrounding provinces and regions, and also the connectivity of the province or region with other countries.

While examining the connectivity of the province or region, the connection of the province with remote districts and villages is investigated. In the sense that the production made in nearby provinces or provinces that are far away from the city centre is sold in the centre of the province or region, it is important to develop the connection between these areas. While this may be more about selling the agricultural production made in districts and villages[3], it affects the transportation of a production facility located away from the provincial centre to the centre. In addition to this, if the raw materials, intermediate products or equipment are supplied from nearby provinces or districts, it is known that developed product transportation connections between these places will contribute significantly to production. The connectivity at provincial or regional level is examined within the scope of cost, duration and quality mentioned above. In addition to these, the substructure of the roads is among important indicators while examining the connectivity. Asphalt roads are important factors affecting the duration and quality of transportation. The asphalt road rate between provincial centres and nearby districts and villages in Turkey is low. Thus, the examination of this indicator that does not become that prominent in the connectivity analyses at other levels separately as an important factor in provincial connectivity strengthens the analysis.

Connection modes with domestic markets and their effectiveness is another analysis used in connectivity analysis in order to provide information about product transportation. One of the steps of this analysis is to examine the afore-mentioned elements. In this context, domestic connection routes and modes are mapped and the cost, duration and quality analysis is performed for each route. Furthermore, it is also beneficial to identify alternative routes and modes in domestic product transportation. Apart from these factors, certain factors that will affect domestic product transportation should be taken into consideration, and it is necessary to include them in the analysis as well. Some of the elements to take into consideration are as follows:

- **Connection with near and remote provinces:** The connectivity analysis differs by the distance between two places. One of its reasons is that alternative transportation methods and routes increase when going to remote places. In this case, the access to alternative routes, among previously mentioned connectivity criteria, becomes more important. On the other hand, transportation methods is more restricted in the connectivity analysis with nearby provinces, and properties such as cost and duration may become prominent in this case.
- **Connectivity with provinces with high economic intensity and that the region can be related in economic or geographical terms:** The economic density of a place can be defined as the economic outputs obtained from unit land area.[4] That the economic density of a place is high, or the access to places with high economic density is important in terms of the increase and variation of the economic activities in that region. It is possible that a province with a high connection with a place of high economic density benefits from various seller and buyer capacity of the market there. Indeed, the World Bank also states that the difference between economic development levels will decrease when economically less developed places are connected to places with high economic density.[5] For such an analysis, places with high economic density among the places located or have the possibility to be located in the external economic environment of the province or region are determined, and the analysis of the connectivity with these places is performed using the methods mentioned in this tool. The agglomeration index below is mentioned as a method of calculating economic density.
- **Access to ports, airports, railway transfer centres and logistic villages:** The time and costs spent to access areas mentioned within the scope of this analysis by road and the transportation capacities of these areas are

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[3] World Bank 2009, *Reshaping Economic Geography", World Development Report*
[4] Id.
[5] Id.
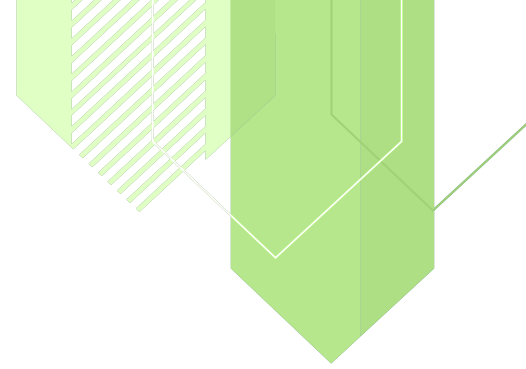
the determinants of access. The capacity analysis of these centres can be performed by comparing the amount of cargo transported from here to the competitors of the areas mentioned. For example, considering that the most used port by organized industry regions in Gaziantep is Iskenderun Port[6], elements of Iskenderun Port, such as cargo capacity and transportation network affect the connectivity of Gaziantep. For this reason, it is important to examine these centres. It is possible to perform the capacity analysis on this subject in cooperation with other development agencies or other relevant institutions.

The connectivity elements mentioned in this tool affects the connection with international markets. Factors effective in both domestic and international transportation play a part in the transportation of the products to a place. Thus, the aforementioned factors affecting domestic transportation and many other factors also affect the access to international markets. The examination of these factors is important in terms of understanding the international connectivity of a province or region. Some of these factors can be listed as follows:

- Foreign languages spoken in the region and their level
- Legislation differences between Turkey and the country it has economic relations with
- Customs legislation in the country with economic relations
- Time spent for bringing the products into conformity with the legislation
- The period of keeping the products at the customs
- The connectivity within partner countries from the moment the product departs from the country and reaches destination
- The connectivity that differs by the countries that have and do not have trade agreements

The comparative examination of the places to which a province or region is connected with similar or competitive other places helps understanding the effectiveness of the connection methods between these places, as well as the network relations (network level) of that place. That the companies in places with similar geographical properties are in relation with companies in different places may result from physical connection problems, as well as problems in forming network relations by companies. Thus, a study examining the reasons for the differences between the relations should be performed after determining these differences. It is possible to benefit from many data sources that show the relations of places with other places comparatively for such an analysis. One of them is the data set created by the General Directorate of Highways on which products are transported where by using the truck transportation between certain points (provinces) using surveys. In addition to this, it is possible to obtain data on invoice information of companies from the Ministry of Finance. Furthermore, it is possible that the development agencies themselves also benefit from survey method in order to collect data on the suppliers and customers of the companies in the region. The clustering section in Investment Climate Assessment Surveys provides general information on the suppliers and customers of companies. It is necessary to comparatively assess the relations between provinces by supporting with detailed analysis and thus identify the problematic areas. Then the reasons of the problematic areas identified are investigated. For example, according to the records of 2007 of General Directorate of Highways, while the products departing from Izmir are distributed to 54 different provinces, those departing from Gaziantep are distributed to 37, and products departing from Diyarbakir are distributed to 30 different provinces. In addition to this, the major part of the products transported from Izmir is taken to Ankara that of Gaziantep goes to Istanbul, while the major part of the products transported from Diyarbakir goes to its neighbour Mardin. In figure 47, where 60% of the products transported from these three provinces go is shown in the ranking of provinces. Such an analysis is also affected by the general connectivity in the country. This may also ensure that the differences between provinces that are near are also seen. For example, it is interesting that the provinces where Gaziantep and Diyarbakir, which are not very far away from each other, carry products most are Istanbul, which is 1200 km away, and Mardin, approximately 92 km away, respectively. While this may be the consequence that the connection from Diyarbakir to Gaziantep is insufficient, it may also result from the failure of Diyarbakir companies to develop a sufficient network with Istanbul. It is possible

[6] Ministry of Transport 2009, *Transportation Coastal Structures Master Plan Work 3rd Interim Report*

to achieve development axes at competitive level by increasing the connection of Diyarbakir as a result of detailed examination of this situation.

Figure 47: Destination of 60% of the Products Originating from Gaziantep, Izmir and Diyarbakir (All Loads)

Source: Unal, L, 2009, "Modelling of Freight Transportation on Turkish highways", unpublished PhD thesis, ODTÜ.

Connectivity Analysis in terms of Passenger Transportation

A province that has a developed connectivity with far districts and villages and neighbouring provinces can develop its human resource capacity. That there is a developed connectivity of the province with its own districts and surrounding cities increases the human resource mobility here. Approximately 11% of the production in London is created by workers who live outside London and travel to the centre everyday.[7] It is observed that similar relations also occur between Manisa and Izmir, and Kocaeli and Istanbul in Turkey. In addition to these, in a province where the connection with districts and villages is developed, especially manufacturing companies can reduce their land expenses by establishing their production outside city centre. Connectivity analysis can be examined with several different methods in terms of the access to the human resource in surrounding provinces and districts.

- **Examination of passenger transportation between the province and its districts and villages, and surrounding cities:** For this purpose; such factors as public transportation possibilities between these spots, their frequency and comfort, the duration of transportation between two places by road and (if any) railway, and per person cost of transportation are examined. Surveys and interviews are held with transportation companies and passengers with this aim.
- **Density index:** The definition of economic density is mentioned above. And density in terms of the connectivity of the human resource is related to the density of people engaged in economic activities per unit land. Agglomeration index[8] used by World Bank is one of the tools that can be used for density measurement. It is possible that development agencies use this index to understand the human resource capacity. Accordingly, a place can be regarded as "dense" if one kilometre area has the following conditions:
    - If the population density in per square kilometre is over 150 people,
    - If another settlement area that can be regarded as large is accessible in maximum 60 minutes by road,
    - If a large area is accessible (with a resident population more than 50.000 people)

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[7] World Bank 2009, *Reshaping Economic Geography", World Development Report*
[8] Chomitz and others (2007); Uchida and Nelson (2008)
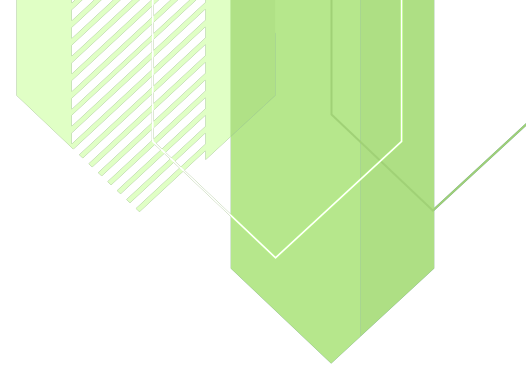
The examination of the connectivity with far provinces in the country and abroad is important in terms of the competitiveness of the region. That a province or region has a developed connectivity increases the access of that province or region to the human resource in the country or abroad and may contribute to attracting qualified human resource to the region. Furthermore, the presence of a developed human transportation system also encourages entrepreneurs and investors who do not want to change the place they live but want to venture or invest. Thanks to this, investors and entrepreneurs have the opportunity to control their business without living there. And for this reason, it is important to determine the connection methods that will ensure the access of these people to the regions and perform the cost, duration and quality analyses of these. Two types of connection methods that can be examined in this context come forward.

- **Fast train:** Fast train applications is a developing type of transportation in Turkey due to problems in railway transportation. However, the increase in fast train activities is regarded as an important element for human resource and connectivity to investors by ensuring that provinces are connected to one another in short cut.
- **Domestic and international flights:** The access of a province or region to domestic and international flights is an important element of attracting investors and entrepreneurs to a particular place. Especially considering the opportunity to connect with international flights by changing flights over other provinces (such as Istanbul), it is seen that domestic flights are important in terms of the connectivity of human resource and investors. Indicators such as the number of domestic and international flights that depart and land in the closest airport, their transportation capacities and landing points are examined with such an examination. In addition to these, the duration and methods of access to the airport from the province also affect the access to flights.

Connectivity Analysis in terms of Communication Opportunities

The communication infrastructure of a province or region is an important factor affecting its level of competition and it must be examined in connectivity analysis. The communication infrastructure of a place is effective on the investments and entrepreneurship activities to be held there. A developed communication network can attract investment to these areas as it is important in terms of certain service sector activities. For example, that Erzurum is located in the intersection point of fibre optic networks enable the clustering of the call centres in this region. The existence of the communication infrastructure provides the investors and entrepreneurs the opportunity to manage their ventures in these regions afar without physically existing there, in addition to providing investment opportunities this infrastructure can use. Hence, entrepreneurs or investors can also invest in the region without residing there. The status of the communication infrastructure of the regions that can provide the opportunities in question is examined within the framework of cost, duration and quality indicators. Here, the ease of accessing communication services (indicators such as the duration needed and bureaucratic processes) is an important element. While the communication infrastructure of a region includes many elements such as phone and internet, especially the internet infrastructure and quality come forward in case the developing technology is present. The indicators for the examination of the internet and phone infrastructure of a place can be obtained from the Ministry of Transport, Maritime Affairs and Communications, as well as private communication companies. It is possible to reveal missing points by comparing these indicators with competing provinces and regions.

The communication methods that companies use with their suppliers and customers are also among the factors that affect their connectivity. Using these tools, they can communicate with suppliers or buyers with whom they normally cannot interact, and they can buy and sell goods and services with provinces away from their place. In order to understand such a connection, indicators such the internet and phone usage rate of the region or province and internet speed can provide a general view, as well as different communication methods companies use in their relations are also examined. That companies use the internet is important in such an environment where the use of the internet is gradually increasing. For this reason, it is important to examine the rates and methods of internet use (e-mail, e-trade, etc.). It is possible to use the relevant sections of Investment Climate Assessment Surveys for such an examination.

Furthermore, such surveys also allow for seeing the condition of the province or region examined when compared to its competitors by enabling to make comparison with other provinces/regions and countries (Figure 48).[9]

Figure 48: Methods Used by Companies in Their Communication with Customers and Suppliers
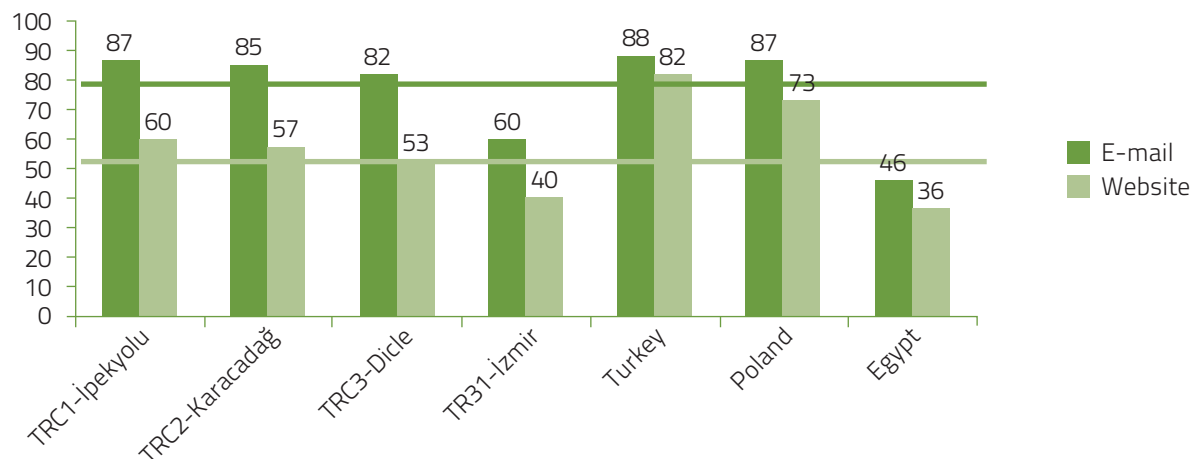
Source: UNDP-GAP Investment Climate Survey 2012

Connectivity Analysis through Indices

There are many indices examining the connectivity and formed by the weighting of different indicators. Indices are important in that a region may give a general overview with the connectivity and allows for making comparison with other provinces and countries. However, indices may not be sufficient for understanding the region or sector-specific subjects, or the subjects that should be focused on. For this reason, it is deemed beneficial to support index calculations with the detailed analysis of other factors that are important for the region. It is possible for development agencies to develop indices by synthesizing the data they collect themselves using previously developed methods as well as benefiting from the indices in connectivity analysis. Some of many indices that development agencies can benefit are listed as follows:

- **Socio-Economic Development Index (SEDI) connectivity sub-index:** SEDI is an index that is prepared by the Ministry of Development and examines socioeconomic development in many aspects. One of the sub-indices in this context is the connectivity sub-index, and this index is important in that it gives information on a provincial basis. For this reason, agencies can get a pre-information about the province they will analyse by using this index. SEDI connectivity sub-index includes the following indicators:
  - Rural area asphalt-concrete road ratio
  - The distance of the province to the closest airport
  - Number of broadband subscribers per dwelling
  - Number of GSM subscribers per person
  - Load-km values of the province by highways and state highways
  - Proportion of total railway line to surface area
- **Furthermore, it is possible for the development agencies to create a connectivity index for their regions by using the Logistics Performance Index (LPI) created for countries by World Bank.** LPI is an index developed with the cooperation of Turku University in Finland and World Bank, and it is designed in order to examine the comparative status of countries in trade transportation. The surveys are answered on the internet, and participants are asked questions about eight countries that their country is engaged in trade most, in

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[9] Burada yine örneklemin mikro firma yoğun bir örneklem olduğu unutulmamalıdır.

addition to their own countries. Commercial transportation performance is analysed for each country under six subheadings in total. These headings are:[10]

- The speed of fulfilling customs formalities
- Quality of the infrastructure about trade and transportation (for example, ports, railways, roads, information technologies)
- Ease of the adjustment of dispatches using competitive pricing
- Sufficiency and quality of transportation services
- Opportunity to monitor the dispatch
- Whether the dispatches are delivered in the estimated or planned time

It is possible that the agencies benefit from the methodologies and indicators created for this index for developing an index that can be monitored by years on a provincial basis. A survey can be created by taking the survey of the World Bank as a basis in the development of such an index (see Box 14). However, it should be taken into consideration that some of the indicators of these indices formed for countries may not have the same importance in the connection analysis at provincial level. For example, the speed of fulfilling customs and trade formalities is a general situation for countries, and this indicator is not significant in connectivity analysis. For this reasons, these elements should be taken into consideration for the determination of the data to be used in index calculation.

Box 14: How to use weighting and index creation?

Index creation allows for creating an indicator using many data on a specific subject. That indices allow for following a path rather than monitoring many data together and the opportunity to determine the relative importance of various data on a subject are two important reasons that index creation is a preferable method. Furthermore, index creation method allows for both monitoring the course of the current situation and scenario analysis.

In the current situation analysis, weights given to communication and transportation subindices should reflect current investment rates. And it is possible to measure the effect of an investment decision that will change the relative weights of transportation and communication in future period investment rates with scenario analysis. For this reason, the total is calculated by using the weights of communication and transportation alongside with weight of the investment that is planned to be made in the future period.

Both level and index data can be taken into consideration in provincial analyses. In case the connectivity index is desired to be created by indexing the data to a main year just as they are created for Turkey, all data for one year to be determined by Development Agencies are equalized to 100; then the data in all years are recalculated by this rate.

Taking the weighted total by giving each subindex a coefficient between 0 and 1 is emphasized as a method of index creation in this toolkit. However, indices may also be formed by main components analysis on all data. For example, Socio-Economic Development Index created by the Ministry of Development was prepared using this method.

It is possible that development agencies use the Connectivity Index methodology formed by TEPAV. This index divides the connectivity into two sub-indices being communication and transportation. Data on road, air, rail and seaway are used for transportation, while data on the use of both land phone and mobile phone and the internet are used for communication. Data and data sources that can be used for creating this index on a provincial basis are shown in Table 36. Exemplary coefficients that can be used in subindices are shown in Table 37.

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[10] Source: Dünya Bankası, Logistics Performance Index web sayfası, Erişim tarihi: 1 Eylül 2012: http://info.worldbank.org/etools/tradesurvey/Mode1a.asp

Table 36: Indicators and Sources that can be used in the Creation of Connectivity Index

DATA USED IN FORMING THE TOOL	DATA SOURCES
TRANSPORTATION	
The amount of cargo and passenger transportation on state roads, provincial roads and highways	Regional Directorates of Highway or TURKSTAT
Load and passenger transportation in railroads	TURKSTAT
Distance of the province to the near and far trade centre by road (in minutes)	Google Maps, Yandex Maps or Regional Directorates of Highway
Number of the airports in the province	Development Agencies
Daily number of flights in the airport	TURKSTAT
Distance of the province to the nearest airport by road (in minutes)	Google Maps, Yandex Maps or Regional Directorates of Highway
Amount of cargo and number of passengers transported by air	TURKSTAT
Amount of cargo and number of passengers transported by sea	TURKSTAT
Number of ports in the province	Development Agencies
COMMUNICATION	
Number of internet connection by dwelling (broad band)	Information and Communications Technologies Authority
Number of GSM subscribers per person	Information and Communications Technologies Authority or GSM companies
Number of land phone subscribers	Turk Telekom

Box 15: Calculation of TEPAV Connectivity Index

Connectivity index consists of two subindices being transportation and communication. The weights of preferring various transportation routes in cargo and passenger transportation in the 8th and 9th Development Plans are used in order to weight the transportation index. These weights were used as 2001-2005 averages in the index. After forming two different weighted averages for cargo and passenger transportation using these cargos, arithmetic mean of these two subindicators were taken. Thus, transportation subindex is formed. And communication subindex consists of three data in total, and calculated with the method of taking weighed average as in the transportation index. And the weights for this subindex were taken from the 8th and 9th Development Plan . The two plans include the usage rates for these communication paths and these rates were used for weighting in the subindex. These weights are shown in Table 37.

Table 37: Indicator Weights for the Subindices of the Connectivity Index

TRANSPORTATION SUBINDEX COEFFICIENTS			COMMUNICATION SUBINDEX COEFFICIENTS	
	Load	**Passenger**		
Road	0.90	0.95	Mobile phone	0.61
Railroad	0.06	0.02	Land phone	0.22
Air	0.03	0.03	Internet	0.17
Seaway	0.01	–		

Background Studies and Assessments

Connectivity analysis is an analysis that has quite a lot of components and can be shaped by the current situation and priorities of the region. Thus, the determination of current types of transportation of two places and the distance between them in kilometre in connectivity analysis is not sufficient to understand the connectivity of that place. The connectivity analysis of a place is examined in terms of good transportation and passenger transportation with that place and other places, and the conditions of the communication infrastructure. The connectivity analysis in each element here may also vary. For example, the priorities of good transportation vary by whether the good is transported between the districts of a province, between provinces or international transportation. For this reason, it is important to make a connectivity analysis that fits changing needs and priorities. For example while examining the connectivity analysis of Gaziantep, it is beneficial to make a connectivity analysis that take into consideration the unique logistics conditions of legumes, which is among the prominent sectors here. As the legumes transported from there to other parts of Turkey should be transported in such a way as to protect the properties of the legumes (for example, in a dry environment), this should be specifically taken into consideration while assessing the transportation modes used here.

As a result of a connectivity analysis carried out in accordance with the priorities of the region, problematic areas of the connectivity of the region are identified and policies are formed to overcome these. As a result of the analysis, development agencies identify the priority problem areas against the economic development and competitiveness of the region. After this stage, local or national policy suggestions are developed for these areas, and the policy suggestions developed are prioritised and applied by the purposes and activity capacities of the agencies.

Connectivity analysis is used much more effectively in case it is carried out in interaction with the other tools in this toolkit and contributes more to the development of the competitiveness agenda. While the other tools of the toolkit can strengthen the connectivity analysis, this tool also provides an input for the other tools. One of the tools that will affect connectivity analysis is the analysis of the external economic environment. External economic environment analysis significantly contributes to the connectivity analysis by examining the relations of a province or region with surrounding provinces and economic partners that are further away. In addition to this, life quality analysis also provides input for the connectivity analysis by means of the analysis of the transportation facilities in the province and their quality. Furthermore, the value chain analysis examines all stages of a product or sector, as well as the transportation of these products. It is possible to use the findings here in connectivity analysis as well. This may be in the exact opposite way, i. e. using the findings achieved in connectivity analysis in value chain analysis. In addition to this, connectivity analysis strengthens certain analyses in other tools. For example, connectivity analysis contributes to export performance analysis as the export performance of a province or region is affected by its connectivity. In addition to these, that the province/region has a good connectivity as mentioned above contributes to the entrepreneurship ecosystem and skill set as it attracts the human resource, investors and entrepreneurs.

It is beneficial to support connectivity analysis with certain background and advanced level studies in order to strengthen the contribution of connectivity analysis to competitiveness agenda.
  ▪ **One of the critical works to be performed in this subject is to collect connectivity data at provincial level.** In the current situation, provincial connectivity data are quite limited and insufficient for an analysis that will identify problem areas. For this reason, it will be beneficial to carry out works on the identification of problem areas with the companies and logistics companies located in the province or region in data collection. These works can be carried out as surveys, interviews or focus group meetings.
  ▪ **Making as many comparative studies as possible allows for understanding the performance of the region in terms of the connectivity.** A connectivity analysis that will be carried out for the region is not always sufficient to see the problem areas in the region. Despite the opportunity to make a comparison with other provinces and countries using the indices, these indices may come short of seeing the details. For this reason, it is beneficial to conduct mutual studies with the development agencies that include these provinces in order to perform comparative analyses with other provinces. While this provides the "benchmarking" opportunity on the one hand, it also gives rise to other positive consequences such as sharing the workload in data collection.
  ▪ **The feasibility and effect analysis studies of the programs and projects developed for the problems identified as a result of connectivity analysis are important.** Connectivity analysis contributes to the programs and projects to be developed significantly by determining the problems encountered in different connection methods. For example, it is possible to create new logistics villages, and develop new routes, programs and projects such as foreign language programs. However, problems may occur in the implementation of these programs and projects for such reasons as legislative requirements. For this reason, the feasibility studies of the programs and projects developed prevents a future loss of source. Furthermore, the programs and projects that are developed and can be implemented may remain ineffective in solving the bottlenecks identified. And thus, it is important to perform effect analysis studies and identify the shortcomings after the programs are implemented.

6. ANALYSIS OF EXTERNAL ECONOMIC ENVIRONMENT

6. ANALYSIS OF EXTERNAL ECONOMIC ENVIRONMENT

Table 38: External Economic Environment Analysis Summary Table

Purpose of Use	1. Examine the status of provinces for countries and regions with which they have economic relations inside and outside the country 2. Capture the current situation and identify opportunities (particularly for SMEs to internationalize)
User Profile	Experts in economics, particularly in international economics
Method	Analysis of foreign trade potential of sectors in the region; comparison of the competitiveness of the region and Turkey with the countries which buy most from the relevant sectors, major actors in such countries and competitors
Potential Outputs	1. Findings on countries competing in export markets 2. Analysis of modes of integration of the region with the external economic environment
Relevant Entities and Stakeholders	Development agencies, chambers of industry and trade, Ministry of Development, Ministry of Customs and Trade, companies
Critical Issues	1. The reliability of analyses revealed by the tools is directly proportional to the reliability of export data 2. To formulate a correct strategy, it should be supplemented with such analyses as export performance, investment climate assessment etc.

Being informed about the external economic environment has become one of the preconditions of the competitiveness in the increasingly globalizing world economy. External economic environment analysis allows for assessing the current situation and future opportunities by examining the situation of regions in other regions that it has economic relations within and outside the country. External economic environment analysis gains even more importance especially in critical subjects such as the development of SMEs and internationalization.

External economic environment analysis is carried out in four steps. While the determination of the external economic environment is the first step, the trade/investment with the current and potential partners in this environment is analysed in the second step. The analysis can be performed in different planes (provincial, regional or national) by the need of the analysis to perform this analysis. Although these tools are examined in certain sections of the external economic environment analysis that is closely related to investment climate analysis, and export and production structure analysis, it is deemed beneficial to use both tools in question while using this tool for a more detailed analysis.

Figure 49: Steps of External Economic Environment Analysis

STEP 1	STEP 2	STEP 3	STEP 4
Determination of the External Economic Environment	**Analysis of External Economic Environment and Trade Relations**	**Detailed Look at External Economic Environment**	**General assessment and policy design**
1. Determination of priority impact channels (geography, location, trade relations, investments, infrastructure, information and technology relations, human resources and migration dynamics)	1. Identification of Existing Trade Partners 2. Examination of the Nature and Development of the Trade 3. Identification of Potential Markets 4. Identification and Examination of Competitors in the External Economic Environment	1. Overview of investment climate and ease of doing business in the external economic environment 2. Overview of markets in the external economic environment 3. Review of standards and legislation 4. Overview of security and political stability 5. Connectivity analysis	1. Policy design using the outputs from other tools to improve the trade and investment relations of the region with the external economic environment

Determination of the External Economic Environment

Before performing external economic environment analysis, it is necessary to determine the region that this analysis will include. The determinants of the external economic environment of a region can be geographical factors as well as economic factors. The identification of the regions that a particular region has relations with in the current situation as well as the actors who have the possibility to be there for economic and political reasons will be an important part of the competitiveness agenda. In the remaining part of this section, the elements that will be effective while determining the external economic environment and how each element can be examined by existing and potential partners are mentioned.

One of the most important determinants of the external economic environment of a region is the geographical position of the region. A region has economic relations with the surrounding places in many aspects. The geographical places around a particular place is closely related to its level of competition and its development. The two regions may have trade relations as well as interacting in terms of investment and human resources. The development level of the near geography and the economic development of that country are factors that affect each other.[1] The actors in the external economic environment of a region in terms of geographical location come forward as provinces, regions and countries. For this reason, the current socioeconomic and political situation of the regions around a particular region and their various economic relations with the region are examined. For example, Iraq is in the external economic environment of Gaziantep as a result of especially trade relations being the neighbour of Gaziantep. After making this determination, it will be necessary to examine properties of Iraq, such as its political situation and petrol market, which will affect the economic relations with Iraq. Mutual works are carried out with the relevant development agencies in order to examine

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[1] World Bank. (2009)."Reshaping Economic Geography", World Development Report, 431738.
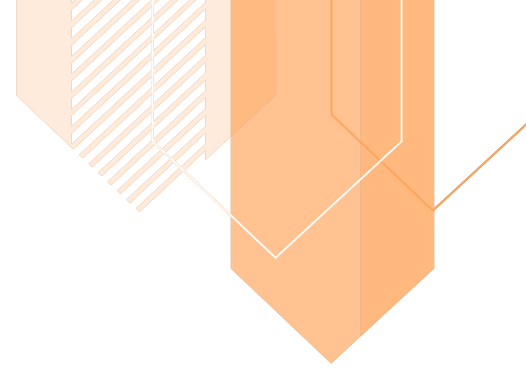
the situation of the surrounding provinces or regions and economic relations in the country. A different path is followed in the analysis of the situation related to neighbouring countries, and the content of the extensive examination that can be carried out in this subject are explained in the section "Detailed Look at External Economic Environment".

One of the most important determinants of the external economic environment is the trade dynamics. Trade and especially export are regarded as one of the most important factors for the development of the competition level of a region. According to many studies, regions that are actively engaged in trade can become more integrated into global economy and develop economically by benefiting from the competitive advantage. At this point, it will be important to understand with whom and over which products trade is made in addition to the contribution of trade to the level of competition. Furthermore, competitiveness will be affected in case relations are established with potential partners in addition to trade partners. The analysis of export products and its effect on the level of competition are explained in production and export structure analysis section. And this tool includes suggestions on how the external economic environment created through trade channel can be examined.

Investments constitute another element that must be taken into consideration when determining the external economic environment of a region. In terms of the investments, the external economic environment of a region includes the investments that will be made outside from the region and the investments that are made on the region from outside. This may be related to international investments as well as the investments in the country. It is necessary to examine all factors such as the political situation, policies, connectivity that will have an effect on investment decisions in the assessment of the external economic environment in terms of the investments. A detailed explanation on how the examination in question will be performed is explained in the "Detailed Look at External Economic Environment" section. For example, investment incentives in Turkey affect where the investments will be located, and thus these incentives become the determinant of the external economic investments. Furthermore, the examination of the actors outside the region investing on the region ensure that their strengths and weaknesses that come forward when the region attracts investments from the outside.

The infrastructure of a region is also an important source in the assessment of the external economic environment. A region can establish relations with a region that is very close to it in geographical terms when the connection channels between them and their infrastructures are strong. Establishing such a relation resulting from infrastructure opportunities may develop the economic relations between these two regions and ensure that this region is located in the external economic environment. One of the most important examples that can be given about it is that the UK and India, which are actually located far from each other, establish economic relations. That the population in India can speak English and the internet and phone infrastructure in India led to the clustering of call centres used by English companies there, and this has turned India into one of the actors in the external environment of the UK.

Information and technologic relations are also defining characteristics for the actors in the external economic environment. As is specified in the previous paragraph, the technological bonds between two regions position these places in each other's external economic environment. Furthermore, the monitoring and use of new technologies will increase the profit by creating new products on the one hand, while allowing that production is made at low cost with research and development activities and new production methods. For these reasons, the places where information and technology transfer is ensured or can be ensured should also be included in the external economic environment.

It is also important to determine the external economic environment in terms of human resources and migration dynamics. A region can supply some part of its human resources from its own region and some part from places outside the region. Furthermore, those who live in the region can also be employed outside the region. While the employment in question can be seasonal or occur without settling, it may also occur in the form of migration to other places. For example, while the workers coming to Turkey from the countries of Commonwealth of Independent States

may constitute a temporary worker group, the groups that migrated to Germany from Turkey are permanent groups. Furthermore, it is also beneficial to include places that provide qualitative human resources such as the groups that come to Turkey from other countries for educational purposes and stay there in the external economic environment, and to examine them.

Some or all of the elements mentioned here are used in determining the external economic environment. The use of all six subjects mentioned as inputs in the selection of the external economic environment may complicate making such a selection. The selection of the elements that will serve the prioritised areas in the current competitive agenda will be a more pragmatic approach. For example, in a region that aims to develop the information and technology infrastructure with trade relations, trade relations, information and technology relations and connectivity are used as the prominent elements in determining the external economic environment.

Analysis of External Economic Environment and Trade Relations

Table 39: Main Indicators and Sources Used in the Identification of Existing Trade Partners

INDICATOR	SOURCE
Yearly, quarterly and monthly change of export	TURKSTAT, TIM
Change of export per person	TURKSTAT, TIM
Export and import partners	TURKSTAT, TIM, General Directorate of Highways, Ministry of Finance
Markets that the province increases and decreases its sales most	TURKSTAT, TIM

The first step of the external economic environment and trade relations analysis is to identify the places where trade relations occur in the present situation. The main trade partners are the countries or regions that come forward in the trade relations of the region. Potential partners will also be effective in the competitiveness of the region, and it is important to identify them.

The relations of a region with trade partners and their analysis vary by the trade dynamics of that region. For example, when the aim is to determine the competitiveness agenda, it is necessary to focus on the examination of the countries that are the suppliers of imported products used as intermediate products in production in addition to all imported products. On the other hand, if import is of such an importance that affects the competitiveness of the region directly, the analysis of the import partners starts with the identification of the countries that import most.

The examination of all products that are purchased or imported can be expensive; in this case, it is important to identify the main trade partners with which the region makes purchasing/import. It is necessary to prioritise especially the products that will be effective on competitiveness and examine the partners that supply these products. The developments in the places where raw material and intermediate good supply is made can also be effective on the competitiveness of the region. For example, if the main trade partners of Ankara is Gaziantep, from which it purchases certain raw materials, and economic hindrances occur in the production in Gaziantep due to the political situation in Syria, this indirectly affects the production in Ankara due to problems that occur during raw material supply.

The country that the province exports to most is found by proportioning the export that the province makes to countries to the total export from annual export data. For example, according to TURKSTAT data, 34% of the export made by Gaziantep in 2014 was made to Iraq. In this case, Iraq is the biggest export partner of Gaziantep. If the regions in the

country to which the region exports most also differ in their internal market dynamics, the regions of the main trade partners are also examined separately.

Examination of the Nature and Development of the Trade

Table 40: Indicators and Sources Used in the Analysis of the Nature and Development of Trade

INDICATOR	SOURCE
Classification of the import by the technological content of the products	SITC Rev. 2 classification, 3-step sectoral detail export data is used. TURKSTAT provides this data.
Change in export/import markets by years	TURKSTAT, TIM, General Directorate of Highways, Ministry of Finance
Trade openness	TURKSTAT, TIM, United Nations Comtrade database
Trade complementarity index	TURKSTAT, TIM, United Nations Comtrade database
Trade intensity index	TURKSTAT, TIM, United Nations Comtrade database

An important step in examining the trade relation channels with the external economic environment is to examine the products that are traded. The nature of the products that are purchased and sold is quite important in terms of competitiveness. Here, another point that will be examined with regard to products is the technology density of the products that are traded. While the sales of the products with high technology density is an element that strengthens the economic development of a region, the purchasing of the products in question for high costs affects competitiveness negatively. It is possible to benefit from "Import Performance and Production Structure Analysis" in order to examine the relations with the partners outside the country.

It is important to examine the situation of the trade with partners in years in order to understand the development of the relations with external economic environment. While the examination of the change in the amount in years provides an opinion about the future situation of the relations with these partners, it also enables seeing the hindrances, if any. For example, a decrease observed in the export made from Gaziantep to Iraq in years may have occurred as a result of the loss of Gaziantep's competitiveness because of a new a competitor that entered this market. After making such a determination, the results of the decrease of Gaziantep's competitiveness is examined, and programs and projects are developed for eliminating these. It will be beneficial to observe the changes in the variety of the products sold in addition to the changes in total product volume. The assessment of the diversity and nature of exported products is explained under the section "Export Structure and Production Analysis".

The level of trade relations with the partner country is an important input for understanding the trade and thus competitive level of the region. The level of the relation is related to the freedom to trade with the region and partner, how much the export of the region constitutes the import of the partner or how much of the import comes from the partner. For such an analysis, the calculations of trade openness, trade complementarity and trade intensity are used.

Trade openness rate is one of the critical elements that determine the levels of the relations with the external economic environment. It is necessary to talk about the trade openness rate of both the region and partner. The trade openness rate of the partner country is affected by many factors such as trade agreements between the two countries, legislation of the countries and connectivity. Trade openness rate is not only associated with the products that are sold outside of the region but also with the products coming to the region from outside, and it can be calculated as the proportion of the products sold outside the region from the region to the total regional gross added value in the region, as well

as proportioning the whole foreign trade of the region to regional gross added value. This rate is affected by different elements within and outside the country. For example, one of the most important factors of the relations with the partners outside the country is the trade legislation in the country.

Trade complementarity index is an indicator showing the conformity of the export of a country with the import of another country. If a country has competitive advantage in the production of a country while the other is disadvantageous in this product, these two countries are potential trade partners.[2] Trade complementarity is calculated with the difference between the rate of the traded product in the total import of the country and the export of the region. That the index is 100 shows that the import basket of the importing country coincides with the export basket of another country, thus these two countries/regions are ideal potential partners. And that the index score approaches zero shows that the overlap in the import and export baskets are relatively at low levels. TCI is calculated as follows, m_k^i k being the share of the product in the whole import of i country, and x_k^i is the share of the product in the whole export of j country:

$$TCI_{ij}=100 \left(1- \sum_{k} \frac{m_k^i - x_k^i}{2} \right)$$

Trade intensity index shows the intensity level of the trade relations between two countries. This indicator is similar to RCA mentioned in "Export Performance and Production Structure Analysis". However, while RCA focuses on products, TII focuses on export markets. It is obtained by proportioning the share of the export made from i country to j country in total export of i to the share of the whole export of j in total world export. Looking at the change of trade intensity index in years, the change in the trade relations between two countries are seen. TII is calculated as follows, X_{ij} being the export made from i country to j country, X_i the total export of i country, M_j the total import of j country and M_d the total import in the world:

$$TII_{ij}= \frac{(X_{ij}/X_i)}{(M_j/M_d)}$$

A point that should be taken into consideration is to interpret this after examining the level of trade relations. That trade relations are developed may contribute to competitiveness in terms of comparative superiority. It is necessary to separately examine the quality of the product that has comparative superiority for a more accurate competitiveness analysis. For example, if this product is a qualified product, the increase in the export of this product will affect the competitiveness of the region positively. Additionally, the diversity of the markets that the region appeals to is also important.

Identification of Potential Markets

Potential trade partners of the region, of which the external economic environment is examined, are among important factors of the economic environment. Potential trade partners are regions or countries with which the country does have relations in the current situation, but has the possibility to establish relations with as a result of the changes in the quality of production, connectivity and the change in the market structure. Relations with potential partners can be elements that are effective in developing the competitiveness of the region by increasing the export and competitive superiority of the region. For this region, the identification of existing partners and potential markets is quite important in terms assessing future opportunities.

The identification of potential partners/markets is performed with different methods in accordance with the properties of the region analysed and the depth of the analysis. One of the most widespread approaches is to identify countries with high demand in the products that the region exports most and/or has competitive superiority as potential markets.

It is possible to benefit from "Value Chain Analysis" to identify potential trade partners. Value chain analysis includes revealing the bottlenecks by analysing all of the stages from the production and marketing of a product and determining

[2] World Bank. (2012). "Trade Competitiveness Diagnostic Toolkit".
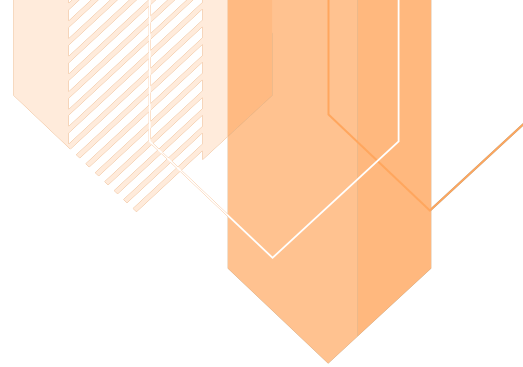
programs, policies and strategies aimed at overcoming these bottlenecks. Performance gaps are determined by comparing the sectors of the country of which competitive superiority is identified to competing countries with a similar value chain. Furthermore, it is advised to examine current sector studies prepared by various institutions in the identification of competing countries. And understanding the value chain of competing countries can be an important input in determining the trade partners of the region.

Other potential actors of the external economic environment can also be places that the region not only exports to but also imports from. Imported products used as inputs in production affects the competitiveness. Thus, potential import partners are also potential partners of the external economic environment. Suppliers in places with a similar value chain that the region benchmarks itself also have the characteristic of being potential suppliers for the region.

The identification of potential trade partners, examining the dimension of the relations with these actors, determining bottlenecks and developing suggestions for them will be critical for the level of competition of the region. Potential trade partners are countries that can be connected with over products or channels that are critical for the economy of the region, but the region has no current relations with. After determining potential partners, all analyses suggested for current partners are also implemented for these partners. Furthermore, it is possible to develop related programs and projects by revealing the bottlenecks by means of investigating the reasons for not being able to establish trade relations with these partners. Consequently, the companies in the region may increase their import or decrease their production costs by overcoming the obstacles against the potential, thus, the competitiveness of the region is increased.

Identification and Examination of Competitors in the External Economic Environment

Table 41: Indicators and Sources Used in the Analysis of the Identification and Examination of Competitors in External Economic Environment

INDICATOR	SOURCE
First five (ten) countries that the main partners in export imports goods from the most	TURKSTAT, United Nations Comtrade database, BACI data set
Ten (twenty) sectors that the main trade competitor imports from the most	TURKSTAT, United Nations Comtrade database, BACI data set

One of the important elements of the relations with the external economic environment is the examination of the competitors in the countries to which export is made or there is the possibility to make export. Export competitors in the external economic environment are other countries that export to these countries. The examination of competing countries and regions in products that are exported will be an important input for the development of programs and projects that develop the export of the region. The region realizes the weaknesses and strengths of its own sales channels by making benchmarking there. It is possible to benefit from "Export Performance and Production Structure Analysis" in the assessment.

The countries that the main trade partners import high levels of goods will be the main competitors of the region that is examined. For example, when the countries that exports to Iraq most, which is the main export partner of Gaziantep, are ranked, it is seen that Iraq imports primarily from Iran. In this case, Iran will be one of the main competitors of Gaziantep.

It is important to determine in which products' export there is competition in addition to determining the competing countries in export. While understanding other exporting countries in the partner country market provides an overview, there is the possibility that competition does not occur in the same sectors or products. For this reason, understanding in which sectors the partner countries have competition will ensure that the competitiveness of the region examined or country competed with in this product/sector. With such an analysis, the region can be compared with its competitors in these products and it helps identify the bottlenecks that occur in the region for the product.

It is necessary to examine the competitiveness conditions of both the partner country and competing country after finding the competing countries and competing sectors. Each element that will affect the export or import of the country that is the trade partner affects the trade of the region, and consequently, the competitiveness of the region. For this reason, the examination of economic and political situation in these countries is a critical subject for the external economic environment analysis.

The competing country in the export partner is indirectly regarded as in the external economic environment of the region examined. Elements such as the socioeconomic and political conditions in competing countries, and the situation of the value chain of the sector/product determine the export made by these countries to the partner country, and this is effective on the export of the region investigated. For this reason, the detailed examination of competing countries also strengthens the external economic environment analysis. In case a detailed analysis is expensive, using analyses performed by the relevant institutions of relevant countries or international institutions can be a second solution.

Box 16: Identification of the Main Partner and Competitor in the Export of Gaziantep

According to TURKSTAT data, 34% of the export made by Gaziantep in 2014 was made to Iraq. In this case, Iraq is the main export partner of Gaziantep. With a value of 4.6 billion dollars, Iran is also one of the main import partners of Iraq. Table 42 shows the first twenty sectors in which the highest export is made to Iraq in 2011 for Iran and Turkey. According to the data, Iran is quite effective in 14 of 20 groups of goods that Turkey exports to Iraq the most. While the superiority of Turkey is observed in medium-tech sectors such as electrical machinery and metal manufacturing, it is seen that Iran has achieved a relative superiority in sectors such as fruits-vegetables, textile and plastic materials. And both countries compete very closely in sectors such as iron-steel, mineral products and grains. Upon looking at this table, it is seen that Iran is quite a serious competitor in terms of TRC3 Region, too. Iran is an active competitor in all of the grains, iron-steel, mineral products and fruit-vegetable sectors that make up almost all of the export made by TRC3 Region to Iraq.

Table 42: Sectors in which Iran and Turkey's Export to Iraq is High

Export Made by Iran to Iraq (2011, 4,6 billion $)		Export Made by Turkey to Iraq (2011, 8,1 billion $)	
Fruits and vegetables	19.5%	Iron-steel	13.1%
Mineral products	16.6%	Grains and their products	8.9%
Mineral products	6.3%	Electric Meter and machines	7.5%
Miscellaneous manufactured articles	6.0%	Fruits and vegetables	5.9%
Dairy products and eggs	4.9%	Miscellaneous manufactured articles	5.9%
Specific industrial machines	4.7%	Metal production and products	5.6%
Grains and their products	4.7%	Mineral products	5.4%
Petroleum products	4.5%	Animal fats and Products	4.1%
Metal production and products	4.1%	Furniture and products	3.5%
Iron-steel	3.9%	Paper and paper products	3.3%
Various edible products	2.9%	Dairy Products and Egg	3.3%
Plastics that are not in primary form	2.5%	Meat and Meat Products	3.2%
Fish and other seafood	2.4%	Vegetable Oils	3.2%
Textile products	2.2%	Articles of apparel and clothing accessories	2.8%
Shoe	2.0%	Textile products	2.6%
Petroleum gas, natural gas, etc	1.9%	General industrial machinery	2.3%
Sugar and sugar products	1.6%	Petroleum products	1.8%
Electric meter and machines	1.1%	Plastics that are not in primary form	1.8%
Articles of apparel and clothing accessories	0.9%	Specific industrial machines	1.6%
Unclassified goods	0.9%	Various edible products	1.5%

Source: United Nations Comtrade database, TEPAV Calculations
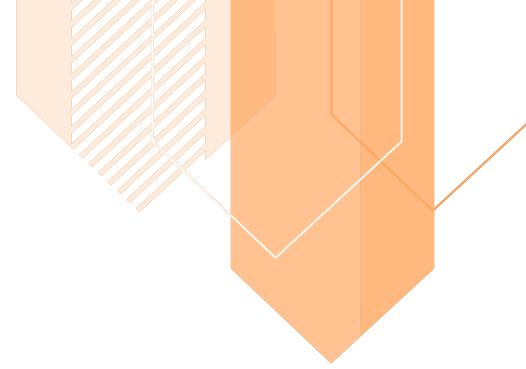
Detailed Look at External Economic Environment

Table 43: Indicators and Sources Used in the Identification and Examination of the Competitors in the Markets in External Economic Environment

INDICATOR	SOURCE
Comparison of structures such as customs, logistics, infrastructure on the investment environment	World Bank Investment Climate Assessment Survey, World Bank Ease of Doing Business Index
Political stability and security	USFI, US Department of Defense, World Bank Investment Climate Assessment Survey, Press news

Examination of the investment climate of the external economic environment is an important input for the investment strategies of the companies that will make investment. Factors that can affect investment decisions and profitability such as customs operations, perceptions of companies on security, logistics and infrastructure conditions may vary from country to country. The comparison of the differences and similarities between the countries considering the main competitors and main markets in the external economic environment is used in the analysis of the competitiveness and potential of the country.

Standards and legislations on trade and services vary by country. This affects the trade relations and investment relations with regard to external economic environment directly. Companies that make production in a region that includes European Union (EU) in its external economic environment should be informed about the REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) legislation that must be complied with regard to chemical products and any product formed by the use of these products.[3]

Political stability and security in the external economic environment is one of the determinant elements of the export to be made to these countries. While the importance of the indicators varies by country, data such as the weekly number of security issues, daily number of attacks, political climate indicators are preferred in the analyses. After determining the political situation and security level in the external economic environment, the risks that may arise in medium and long term are analysed.

Connectivity of a region to its external economic environment is closely related to both its trade relations and investment relations. While geographical proximity stands out as an important advantage about connectivity at first, problems about the insufficiency of logistics infrastructure, customs and border gates and security problems affect the level of the connection of the region with the external economic environment. Nature of the trade made with the external economic environment and the diversity of the products also determine how connectivity should be addressed within the scope of this analysis.

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[3] For detailed information about this legislation, see: http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm address of the European Commission

Background Studies and Assessment

"External Economic Environment Analysis" provides input for certain prioritisation and policy development works on how to develop the trade and investment relations with the external economic environment in such a way that they contribute to the development of the region. As a development actor, the duty of the agencies is to identify the thematic problems faced by the companies in the region on the subjects of trade and investment and contribute to developing sectoral strategies. In order for the companies in the region to get a bigger share from the trade made with the external economic environment and assess the investment opportunities, it is possible to develop programs that fit the economic vision of the region after eliminating the information deficit in potential markets. In this process, development agencies may contribute to the development of the relations with the external economic environment by both developing strategies by means of providing information, and forming platforms where the relevant public and private sector actors come together.

The details on certain regions, sectors or subjects can be examined using certain background studies after applying external economic environment analysis:
- After performing external economic environment analysis, works are carried out for the purpose of developing the necessary opportunities set in order for the market share in this region to increase.
- Sectoral strategies are prepared on the sectors that develop or of which demand increase in the external economic environment.
- When combined with a detailed study on subjects such as the technology transfer from the external environment and migration dynamics of qualified labour force, a detailed analysis on the external economic environment, which is briefly stated in this tool, can be a beneficial source with regard to information exchange that is the result of the relations between external economic environment and product and capital relations.

External economic environment analysis is an important tool that each region that wants to strengthen its bond with the world can use with different themes and focuses. The tool in question can be used as a guide in the development of policy suggestions and bottlenecks in the strengthening of the trade and investment relations with the external environment determined.

External economic environment analysis is a complementary tool that must be examined with other tools rather than a tool that is used alone. Most of the subjects mentioned in this tool are examined in detail in other parts of the toolkit. According to the competitiveness agenda priorities of the region, subjects such as infrastructure or information and technology relations that are briefly mentioned in this tool are also examined in a similar manner with the framework above.

7. ANALYSIS OF REGIONAL INNOVATION ECOSYSTEM

7. ANALYSIS OF REGIONAL INNOVATION ECOSYSTEM

Table 44: Analysis of Regional Innovation Ecosystem Summary Table

Purpose of Use	1. Take a picture of the region's innovation capacity, determining the stakeholders and assessing their perception, 2. Identify the obstacles against the development of the innovation ecosystem in the region
User Profile	Competent experts in economics, engineering, and clustering fields
Method	Innovation indicators compiled from several institutions, focus group meetings, analysis of surveys done to firms and the results of interviews
Potential Outputs	1. Analysis of the factors affecting the innovation performance of the region 2. Findings in regard to developing the regional innovation system
Relevant Entities and Stakeholders	Development agencies, Ministry of Economy, Ministry of Science, Industry and Technology, TTGV, KOSGEB, TUBITAK, universities
Critical Issues	1. Analysis of innovation systems requiring a more qualitative approach compared to other tools 2. Local data on innovation being insufficient 3. Different innovation types and region-specific economic conditions be considered

Analysis of innovation system is a tool that enables the examination of the use of information, technological progress and innovation activities at a region within the scope of competitiveness providing competition agenda with input. Innovation has become more important for regional and national competitiveness as information and technology have taken a bigger place in economy. In order to have a satisfactory level of innovation in a region, several actors and framework conditions have to be met. Innovation assumes that its activities are affected by a multidimensional process that includes general conditions of economy, governance, human capital and infrastructure. The analysis framework in this toolkit strives to cover these different dimensions of innovation as much as possible.

In this section of the toolkit, a framework to conduct analysis on a region's current situation in innovation capacity, and identifying key problematic areas of innovation activities is provided. Developing policies on innovation development and implementing those policies can especially be complicated for developing countries and regions. Analysis of the factors affecting the innovation activities, relationship among these factors and current situation of the framework conditions, contribute to policy design. The innovation system analysis discussed at this section aims to strengthen innovation dimensions of competitiveness agendas by identifying the obstacles for using innovation through current situation analysis.

Innovation can be described in more than one way: In this study what is meant by the term innovation is a product, a service, technology or process being used for the first time in a region. The definition of innovation in a company at Silicon Valley and in a city in an underdeveloped African country can be very different. While in developed regions innovation means a technology that has been never used, brand-new; in an underdeveloped region it additionally includes use and dissemination of information and technology developed in other parts of the World in the local economy. Innovativeness in its broadest sense is the use and dissemination of innovation. Policies on developing innovativeness may vary by region. This situation indicates the need for region-specific competition agenda, which is emphasized in other sections of this toolkit.
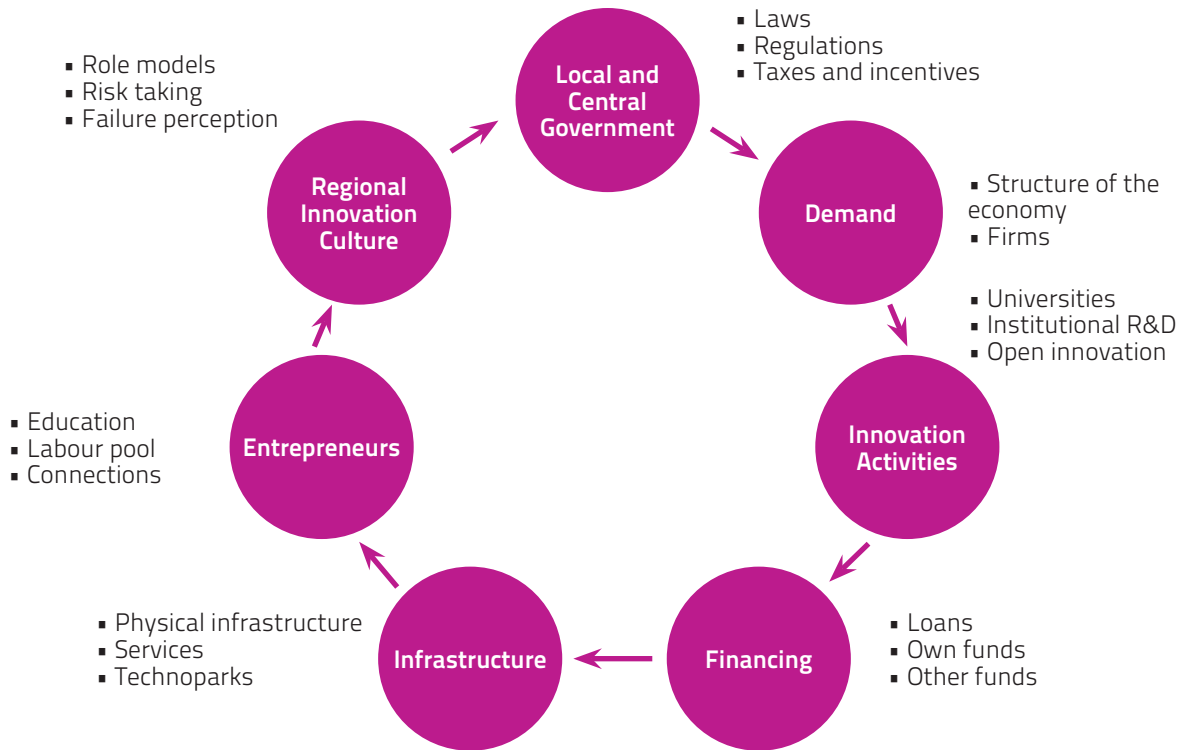
At this point, it is necessary to point out that research and development (R&D) activities do not mean the same thing as innovation. Research is an important input for innovation but is not a pre-condition. As R&D activities do not always yield innovation, innovation does not always stem from R&D activities. The "Ecosystem Approach" that we will adopt at this toolkit, includes stakeholders such as public, entrepreneurs, consumers in addition to the research departments at universities and R&D departments at companies, and treats innovation as a social process.

Factors of Regional Innovation Ecosystem

Regional innovation system approach sees innovation as a social process influenced by various factors. A current situation analysis of regional innovation system should be for determining the place of these factors in the systems and their relationship with each other. The factors of innovation system can be listed as follows:

- **Local and national institutions:** It is important for the effectiveness of innovation system that local and national administrations get rid of the obstacles in the way of innovation within their authority (fight against activities such as monopoly that have negative influence on competition, simplifying bureaucratic process, forming a framework to enable the diffusion of new information and technologies etc.).
- **Demand Conditions:** The structure of the economy and what type of products and services the consumers and companies demand are among the important factors affecting the innovation ecosystem. Once the R&D activities are shaped by the demand in the market, it is easier for the companies to adapt to the changes in economic and social conditions. An innovation system that works well can maintain its dynamism in this way. Entering foreign markets when there is no demand for innovation in the regional markets can trigger the innovation activities in the region.
- **Innovation Activities:** Innovation activities that may be conducted in various forms, as research activities in universities, R&D studies in companies, and open innovation, can take place within the suitable conditions provided by the regional innovation system.
- **Funding:** A solid funding support is needed for the innovation activities to be conducted as well as for the actors that will conduct the research so that they can fight uncertainties the innovation process brings. Since it is a time-consuming process for the new products and processes to commercialize and bring profit, innovative companies' Access to funding becomes a hindering obstacle.
- **Infrastructure:** In addition to crucial physical infrastructure conditions such as R&D and incubator centres, and technological infrastructure, non-physical infrastructure conditions such as qualified individuals and patent law are quite important for innovation activities.
- **Entrepreneurs:** Entrepreneurs founding fast growing and technology-focused companies are also among the key elements of innovation ecosystem. These companies become the driving element in regional development by providing high added value to the region economy and creating employment.
- **Regional innovation culture:** Demand conditions of the companies, R&D investments and innovation activities are directly influenced by the regional innovation culture.

Figure 50: Factors of an Innovation System

- Role models
- Risk taking
- Failure perception

- Laws
- Regulations
- Taxes and incentives

Regional Innovation Culture

Local and Central Government

Demand

- Structure of the economy
- Firms

- Universities
- Institutional R&D
- Open innovation

Innovation Activities

- Education
- Labour pool
- Connections

Entrepreneurs

Financing

- Loans
- Own funds
- Other funds

- Physical infrastructure
- Services
- Technoparks

Infrastructure

Source: Autlet, 2008

Figure 51: Regional Innovation System Analysis Steps

STEP 1	STEP 2	STEP 3
Analysis of the input factors about innovation in the region	**Analysis of the outputs about innovation in the region**	**Prioritisation and development of a program**
1. Compile quantitative data, analysis of input factor and benchmarking	1. Positioning and analysis of innovation indicators, regional, national and international benchmarking	1. Examine results on the regional economy, production structure, investment climate and innovation potential together
2. Innovation ecosystem stakeholder analysis	2. Examine the funding methods for innovation activities	2. Findings for the improvement of innovation system as a result of the assessment
3. Focus group studies with national actors that had a role in the development of regional innovation, and actors part of the regional innovation ecosystem	3. Identify current innovators and study their success stories (focus group meetings, interviews)	

Analysis of Input Factors

Development of a new product, service or a process is a quite complicated process with several actors. Despite the use of necessary sources on paper, the process may not always result in innovation or although a new product is made, the product may not be launched to the market because of commercialization and intellectual property problems. Therefore, the analysis of the inputs and outputs of the innovation process both separately and in relation to each other, is a necessary approach for identifying the problematic areas in the process.

Several indicators are used for detailed analysis of the factors that will serve as input in the regional innovation system. The first of these indicators is the resource invested in R&D activities. Regional data on the resources allocated to R&D activities by companies, public institutions, research institutions and universities are obtained from Ministry of Science, Industry, and Technology and TURKSTAT. Table 45 shows the differences between input factors in ten cities that are studied within this toolkit. Such a table is one of the first steps in innovations system analysis. In Table 46, there is a list of data sources compiled on a regional basis in Turkey. All factors constituting physical and human infrastructure in innovation activities can be added to this list.

Table 45: R&D Indicators in Selected Cities (2014)

		R&D Department Number of Employees/ % Total	Master Degree Holder/ % Population (one thousand people)	Doctorate Degree Holder / % Population above the age of 15
C1	GAZİANTEP	0.16	0.56	0.15
	ADIYAMAN	0.18	0.41	0.12
	KİLİS	1.39	0.47	0.16
C2	ŞANLIURFA	*	0.33	0.10
	DİYARBAKIR	1.52	0.44	0.13
C3	MARDİN	*	0.34	0.06
	BATMAN	0.40	0.41	0.09
	ŞIRNAK	*	0.32	0.06
	SİİRT	*	0.39	0.09
TR31	İZMİR	1.00	1.20	0.37
	TÜRKİYE	0.33	0.99	0.27

Source: Ministry of Science, Industry, and Technology, TURKSTAT and TEPAV Calculations
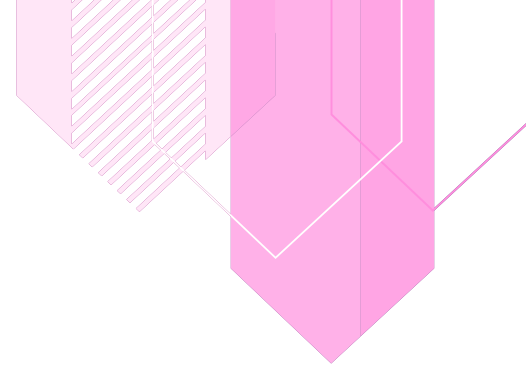
*: no data available.

Table 46: Regional Innovation System Analysis Indicators and Sources

INDICATOR	SOURCE
Population indicators based on educational background	Address Based Population Registration System
Regional brand and patent application indicators	Turkish Patent Institute
Innovation data on company basis (R&D expenditures, technology transfer, etc.)	Investment Climate Assessment Surveys
Number of cited articles	Universities, High Education Board and international sources
Universities' funding sources for their innovation activities	TUBITAK, KOSGEB, TTGV and other sources
Funding sources for the innovation activities of the companies in the region	Investment Climate Assessment Surveys
Share of high-technology product export in total export	Ministry of Science, Industry, and Technology, World Bank World Development Indicators, Milken Institute LQ calculations, TURKSTAT city-based export data
Ratio of risk capital funds to the total expenditures in a city	Ministry of Development

Indicators used when analysing innovation capacities of the regions should not be limited to the current data sources. Development agencies' advantages and priority in compiling data from public institutions (similar to the support given to companies and universities) are beneficial in gathering data that are hard to reach. Assessing the companies' performance indicators can show which areas of constraint affect their innovation activities. Another new data compiling method is using the surveys conducted at regional level (like ICA surveys). The data in question can also be produced by development agencies. Surveys done on innovation go beyond R&D expenditures and key science and technology indicators, and give different data choices like the reason for companies doing innovation or not doing innovation, and funding methods for innovation activities which can be used in analysis.

Other regions to which the selected region's innovation performance will be compared should be identified by using specific criteria. As mentioned above, since the definition of innovation and innovation system strategy change depending on economic development and innovation capacity, selecting sample regions where quantitative data will be compared is an important step. For example, a comparison between a region whose innovation capacity has not developed much, and technological infrastructure has not reached a sufficient level and a region with an electronic clustering where cutting edge technology inventions are made makes it harder to reach correct findings. Therefore, when selecting the regions and countries to compare, it is important to consider the region's economic and innovation status and where it aims to reach in medium term. In the selection of the mentioned region, it is also necessary to pay attention to the current situation of the region under examined (features such as its size, socio-economic structure) and its potential.

Access to funding is one of the important elements of regional innovation system as mentioned before. At different points of the innovation process, different types of funding can be used. Therefore, existence of a well-functioning funding system has a critical importance for innovation activities in addition to activities such as getting into foreign markets and capacity building. Access to funding also influences entrepreneurs' success in developing new products and services. Table 47 presents the funding sources companies used in innovation processes in UNDP-GAP survey.

It is observed that most of the innovative companies, which were few among the companies that participated in the survey, pay for new processes and technologies with their own funds. This situation indicates that there is not a well-developed funding system in the region the survey covers.

Table 47: Financial Management of New Process/Technologies (Number of companies)

METHOD	NUMBER
1. Companies' own funds	27
2. Bank credit	1
3. Public finance/incentive (TTGV, Teknogirişim Sermayesi Desteği, TUBITAK, KOSGEB, Development Agency)	1
4. EU and other foreign sources	0
5. Other	0
Total	29

Source: UNDP-GAP Investment climate survey, 2012

In addition to quantitative data, meetings with regional and national actors that had a role in the development of regional innovation also provide qualitative data. Among these stakeholders are development agency investment support offices, universities, innovative and non-innovative companies, banks, KOSGEB and TUBITAK. Determining the innovation approach of the various stakeholders who are part of the innovation system provides information about the innovation culture in the region. In these meetings that can be done in the form of interviews or focus group meetings, talking over the relations with other stakeholders in the innovation system helps basic problems in innovation processes come to light.

Analysis of the Output Factors

The step after the analysis of the factors that will be inputs for innovation activities is the analysis of output factors that examine the results of initiatives concerning innovation. With regional, national, and international comparisons, number of patent, and registered trademark, international scientific publications per million people, companies that improve their existing products and services that can be considered the most important outputs of innovation are compared. Similar to the comparisons done in the first step, in this step it is possible to do comparison at a regional, national and international level by using the ICA survey data. For example, in Figure 52, there is regional and international comparison of the ratio of the companies that developed an existing product or service in the past two years. When the ratio of companies that developed a product or a service or improve an existing one in the past two years is examined, it is seen that the four regions subject of this toolkit stay notably below the average in Turkey. It is especially noticeable that Izmir stays below Turkey average in this regard. This situation shows that in order to get correct results and design policies, the survey should be designed well. However, since the main purpose in this toolkit is to introduce the tools, the focus is not on the content of the outcome, but on the method through which it is achieved. Among the indicators to be used in the assessment of the outputs of innovation activities are patent and registered trademark applications, the ratio of the turnover and sales from the new products to total turnover and sales, number of international publications. Once more it is beneficial to note that if these indicators cannot be obtained from existing sources, the agencies can compile data through surveys and their dialogues with relevant institutions.
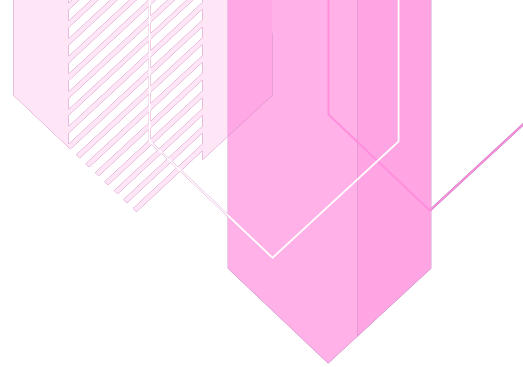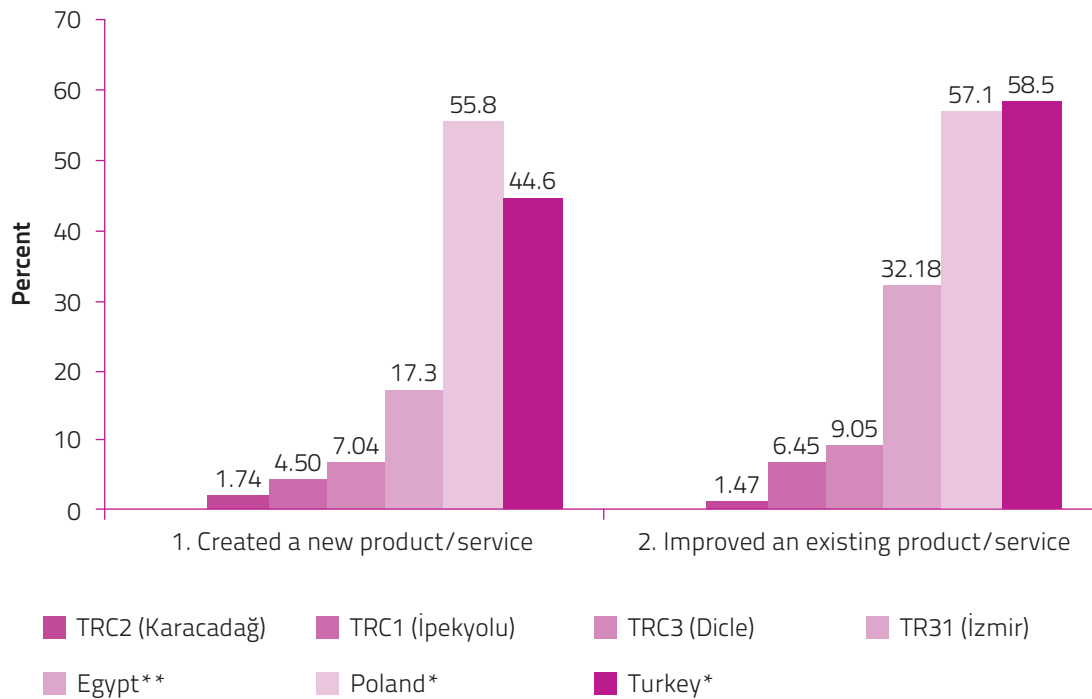
Figure 52: Ratio of Companies That Have Developed/Improved Products and Services in the Past Two Years (%)

Source: UNDP-GAP Investment Climate Survey, 2012

Identifying existing innovation activities in the region and exchanging information with successful companies is an important step that can provide qualitative data to the analysis. Innovative companies can be identified with the surveys conducted in the region or the contests mentioned in the entrepreneurship section of this toolkit. Focus group meetings that will be carried out with the successful companies out of those, can provide input in identifying problematic areas in the region's innovation capacity and the innovation system.

Determining Priorities in Overcoming the Obstacles against Innovation and Developing a Program

Identifying imbalances between input and output factors is one of the first steps of prioritisation study for the development of the innovation system. For example, in a region where elements that will provide input to the innovation process fall behind compared to the similar regions, priority can be given to increasing the resources provided in this area. Moreover, in a region where input factors are relatively sufficient, if innovation processes do not yield sufficient result, this points out to sources not being used effectively and efficiently. In this case, improving the interaction between the stakeholders that take part in the innovation system and making the innovation process more effective can be among the priorities of the programs.

While determining the priorities, it is advantageous to analyse ICA, production structure and entrepreneurial ecosystem analysis results, which are presented in other sections of this toolkit, in tandem with innovation system analysis results. The region's development level and all strengths and weaknesses of the regional economy contribute to shaping the findings for developing the innovation system. The region's competition agenda and the place of its innovation capacity in this agenda should also be taken into consideration in this process. While preparing innovation programs that can differ by the region's economic structure and competitiveness strategy, different types and levels of innovation should be considered. The success of these programs depends on designing a process that includes traditional science and technology policy, but not limited to it, including different bodies of local and national administration and other actors in the innovation system.

Background Studies and Assessment

In this section, regional innovation system is discussed as a mechanism comprising of several stakeholders and framework conditions, based on systematic and mutual interaction. An analysis conducted within the framework presented at this section will be useful in identifying flaws and defects in the functioning of this mechanism. Successful regional innovation policies should focus on improving the whole investment climate. In other words, regional innovation policies should include a lot of areas such as access to funding, entrepreneurship, and intellectual property rights in addition to basic science and technology policies.

Before and after the regional innovation system is dealt with within the framework provided in this section, it is suggested that a series of background studies are conducted:

- Preparation of program suggestions (such as industrial research centres, activities presenting success stories and rewarding them, export promoters and mobility grants) for developing the existing innovation ecosystem, and feasibility studies of these programs,
- Studies towards identifying the need for qualified R&D staff and providing such staff (it can be done via Skill Set Analysis tool which is also in this toolkit),
- Studies about the obstacles against entrepreneurship activities closely related to innovation.

Development agencies that are responsible for the coordination of regional development have three basic functions in developing the regional innovation system. Firstly, they have to function as a platform forming institution by enabling all relevant actors of regional innovation system to work in a certain framework, in constant communication and collaboration environment. Secondly, it is possible for them to take on an accelerator task, aiming to solve learning and collaboration problems between regional innovation system elements, taking steps towards overcoming bottlenecks. Thirdly, by building financial support given to companies and institutions focusing on increasing the innovation capacity in the region, it comes to their paying attention to priorities identified by using this toolkit.

8. ANALYSIS OF LOCAL ENTREPRENEURIAL ECOSYSTEM

8. ANALYSIS OF LOCAL ENTREPRENEURIAL ECOSYSTEM

Table 48: Analysis of Local Entrepreneurial Ecosystem Summary Table

Purpose of Use	Identify the current status of effective and social initiatives and the factors that enable and hinder their development, formulate strategy and programs for the development of these areas, map the stakeholders that will play a role in this context
User Profile	Planning and support applications experts
Method	Use of data compiled from institutions such as TURKSTAT, TOBB, KOSGEB and international data sets, compiling data from entrepreneurship contests and summits, forming qualitative data with interviews and focus group meetings
Potential Outputs	1. Infrastructures that will create entrepreneurship in the regions 2 Map of the entrepreneurship ecosystem in the regions 3. Priorities in strategy and program towards the development of entrepreneurship
Relevant Entities and Stakeholders	Institutionalized companies, non-governmental organizations, entrepreneurs, investors, public institutions (municipalities, KOSGEB etc.), universities, local media
Critical Issues	1. The subject of entrepreneurship being a newer subject compared to other subjects in the tool 2. Insufficient data on entrepreneurship 3 Difficulties in accessing qualitative data and entrepreneurs

The tool introduced in this section has been designed with the purpose of revealing factors that will be influential on entrepreneurship in a region, determining the potential, opportunities, and bottlenecks in this area and designing policy for them. Analysis of Local Entrepreneurial Ecosystem aims to examine all actors and elements that will be influential over entrepreneurship by adopting an ecosystem understanding, thus it enables to identify that region's strengths in entrepreneurship and developing effective policy proposals making use of it.

Nowadays, the importance of entrepreneurship for a region's competition level and economic development is gradually increasing. Accordingly, an important part of competitiveness agenda should include subjects about entrepreneurship. Entrepreneurship may cause the productivity to increase by enabling new companies to emerge in a sector and increase competition between them thus encouraging these companies to search for new methods. Furthermore, with the emergence of new lines of business and increase in competition, it is possible for qualified lines of business that require use of technology to arise. Additionally, new ventures will create a lot of areas of employment and this will reduce unemployment.

Depending on the level and quality of the economic value that is produced, there are different types of entrepreneurship and in order to be able to support entrepreneurship in an effective way, this concept should be understood well, and which entrepreneurship type to focus on should be determined. In its broadest sense, entrepreneurship is the act of producing economic value by developing new products services or markets. However, entrepreneurships are categorized on the basis of the level and quality of the economic value they produce. Although there are similar points between them, examining them separately gives a more comprehensible analysis as each entrepreneurship type may be affected by different elements. For example, while universities are critical actors for effective entrepreneurship below, they may not be important for small business entrepreneurship. Entrepreneurship types can be basically categorized as follows:
   i.   **Small business entrepreneurship:** Entrepreneurship made up by small businesses that have no high growth potential, with low profitability.

ii. **Corporate entrepreneurship:** Entrepreneurship that is formed by big companies turning to developing new products and services to ensure their continuity and to comply with the changing demand or buying innovative ventures.

iii. **Social entrepreneurship:** Entrepreneurship whose primary purpose is to meet the society's various needs or to provide products or services that bring solution to social problems rather than profiting.

iv. **Effective entrepreneurship (high-impact entrepreneurship):** Entrepreneurship formed by the establishment of companies that have high growth potential and have more influence in creating employment, income and role model than an average company.

Effective entrepreneurs contribute more to economic growth and employment compared to other mentioned entrepreneurship types for they are scalable and they grow fast. For example, although fast growing companies that can be considered effective entrepreneurs make up of only 4% of the global entrepreneurs, they cover 40% of total employment.[1] Besides, since effective entrepreneurships that result from R&D activities conducted in universities or privately contribute directly to increase in sustainable competitiveness, analysis of entrepreneurial ecosystem in this section focuses on effective entrepreneurship. Furthermore, social entrepreneurship is important for underdeveloped regions as it yields social results. Therefore, conducting another analysis of social entrepreneurial ecosystem and determining strategies to develop that is useful for regional development strategies.

Figure 53: Local Entrepreneurial Ecosystem Steps

STEP 1	STEP 2	STEP 3
Analysis of the entrepreneurship infrastructure in the regions (framework conditions)	**Analysis of the entrepreneurship ecosystem in the regions**	**Determining priorities and developing a program**
1. Identifying the structure of human resource in the region	1. Mapping the main stakeholders	1. Role of the platform
2. Identifying the innovation systems and their quality in the region	2. Conducting focus group and face-to-face meetings	2. Technical and financial support programs
3. Identifying economic activities in the region	3. Analysing the existing data and producing new data	3. Directed projects
4. Identifying geographical and cultural conditions	4. Identifying the obstacles against the development of entrepreneurship that should be targeted primarily according to results of the analysis	

"Ecosystem" approach is used as an effective tool in the development of entrepreneurship. Entrepreneurship activities, as will be explained in the next section, is influenced by different elements such as existing human resource capacity, technological infrastructure, and access to funding. Therefore, for entrepreneurship activities to take place, these elements should be present in that region; namely, it is important that there is an "ecosystem" for entrepreneurship. For this reason, the analysis in this tool aims to study each factor's influence in that region's entrepreneurship by

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[1] Global Entrepreneurship Monitor (2011). "Global Entrepreneurship Report". http://www.gemconsortium.org/docs/download/2409

focusing on ecosystem approach and uncovering all the factors influencing entrepreneurship. Thanks to this, it is possible to identify the current situation of the ecosystem elements and of the region with regard to these elements and develop strategies to improve those.

It is important that analyses and strategies to improve entrepreneurship are carried out at a local level therefore development agencies have an important function in this matter. When starting a venture, entrepreneurs basically decide on two factors: one of them is whether the enterprise will be started or not, and the other one is, if the enterprise is started, where it will be positioned. For both of these factors local factors are determinants. If the local factors have the quality to support the enterprises, this place is attractive for the entrepreneurs in the region in both decision stages. Therefore, local entrepreneurship policies have greater and faster impact on the development of entrepreneurs and entrepreneurship.[2] Examining entrepreneurship at a local level is also important because current situation and effect of the ecosystem elements that influence entrepreneurship can be different in different regions. It is possible that institutions and networks that are active in some regions are not formed in others. However, in such situation other strengths of other places can create entrepreneurship environment. For example, while in Istanbul there are various funds, angel investor networks and business incubators that have a direct influence on entrepreneurship, in such provinces as Gaziantep and Diyarbakır, totally different stakeholders such as impact investors may have greater importance for entrepreneurship. Therefore, development agencies, which have the capacity to do a strong analysis and form a platform in examination of entrepreneurship at a local level, can assume a critical function.

Entrepreneurial ecosystem is comprised of six elements and the framework elements that support these elements. Individuals, groups or institutions that have direct or indirect influence on launching an enterprise and developing it or a person's choosing entrepreneurship as a career, make up the "Entrepreneurial ecosystem." As seen in the figure below, Entrepreneurial Ecosystem is comprised of six elements, and framework elements and stakeholders that have influence over those elements.

Figure 54: Entrepreneurial Ecosystem Framework Conditions
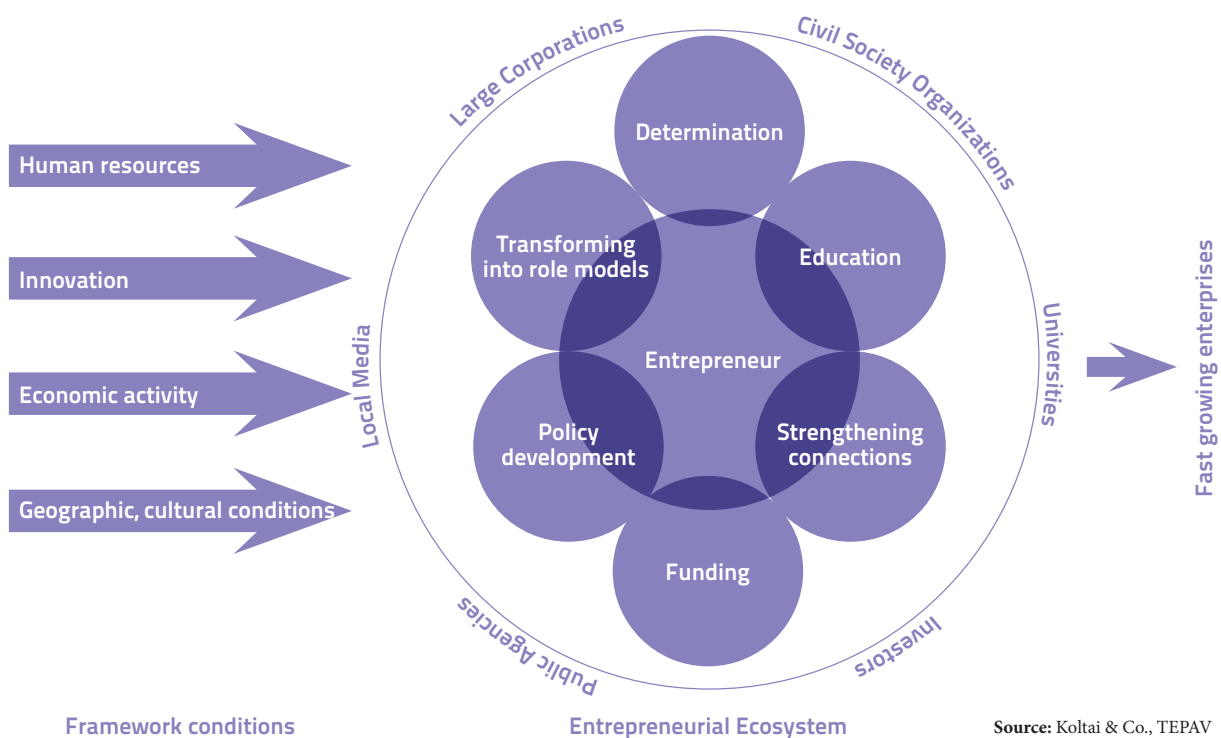
Framework conditions   Entrepreneurial Ecosystem   **Source:** Koltai & Co., TEPAV

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[2] Acs, Z., Litan, R., Fleming, L., Goetz, S., Kerr, W., Klepper, S., Rosenthal, S., Sorenson, O. & Strange, W. (2008). Entrepreneurship and Urban Success: Toward a Policy Consensus. *Kauffman Foundation*.

Analysis of the Framework Conditions

Entrepreneurial ecosystem is established on the framework conditions that strengthen the functionality of the elements of the ecosystem and four basic framework conditions can be mentioned. Framework conditions necessary for entrepreneurship are human resource, innovation, quality of economic activity and geographical and cultural conditions. The development of framework conditions will enable the ecosystem to function more effectively and strengthen entrepreneurship. Therefore, framework conditions have a crucial role in the quality and operations of the entrepreneurial activities. Accordingly it is important to understand framework conditions well before beginning the analysis of the ecosystem. At the same time, it is also necessary to study the change of framework conditions in time and their situation in competitor or similar regions, and understand the effects of these conditions on entrepreneurship. It is possible to make use of the analysis of the framework conditions from different sections of the toolkit as summarized below:

Human resource: Factors such as accessible human resource in the regions, its compatibility with the entrepreneur's desired business, skill level and cost of this human resource affect the decision of entrepreneurs to start a venture at that place and the quality of the ventures started there. In order to understand the status of the existing human resource in the regions, the Skill Set Analysis in this toolkit can be used.

Innovation infrastructure: Innovation is the source of new business ideas for entrepreneurs. A major number of fast growing successful ventures in developed countries come from the commercialization of products or processes developed in universities. Marketing and organizational innovation, which are at least as important as product and process innovation but generally ignored because it is hard to measure them, are among the important factors influencing entrepreneurship.[3] To be able to understand innovation infrastructure and access in a region, Analysis of Innovation Ecosystem section of the tool kit can be utilized.

Entrepreneurial economic activity: The development of entrepreneurship require a developed economic activity level, both with regard to demand elements and finding the industries where a venture will be started. Particularly, economies with value chains that are open to small businesses with high growth potential are more advantageous in terms of entrepreneurship compared to the economies where industries whose scale economies are critical such as iron and steel or natural resources are predominant. Therefore, it is important to see the quality and level of the economic activity in the regions that are being studied. The quality and level of the economic activities in the region depend on the investment climate, production structure and value chain as well as their strengths and weaknesses. In order to understand the economic activities in the region, Investment Climate Assessment, Analysis of Production and Export Structure and Analysis of Value Chain come to the fore as crucial tools in the toolkit.

Geographical and cultural factors: Geographical and cultural conditions start the cycle that feeds the entrepreneurship. It is observed that entrepreneurship develops in cultures where tolerance for different ideas exists, failure is not condemned, sharing ideas and collaboration are normal. Creative individuals like intellectuals, artists, engineers and also entrepreneurs generally prefer to live in cities where this kind of cultural parameters are existent and close to one another.[4] Favourable climate conditions and strong transportation networks also influence the decision of these creative individuals. So as to examine the existing geographical and cultural factors in the region and understand which ones out of them are the elements that will lure the entrepreneurs there, Analysis of Life Quality and Connectivity analysis in the toolkit can be used.

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[3] OECD (2010), *High-Growth Enterprises: What Governments Can Do to Make a Difference*, OECD Studieson SMEs and Entrepreneurship, OECD Publishing.
[4] Stangler, Dane (2010) "High Growth Firms and the Future of the American Economy." Ewing Marion Kauffman Foundation.
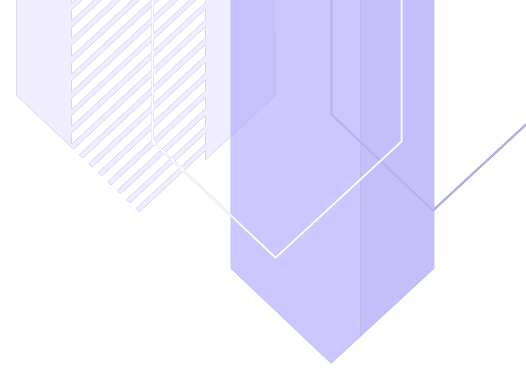
Analysis of Entrepreneurial Ecosystem Stakeholders

In order to produce strategies and policies for the development of local entrepreneurial ecosystem, it is necessary to map the stakeholders that are influential in this ecosystem and study each stakeholder's effect on the ecosystem. The stakeholders of the entrepreneurial ecosystem are actors that affect different elements of the ecosystem in different ways. The stakeholders mentioned in this toolkit are the general stakeholders of the ecosystem and their effect on entrepreneurship may differ in each region. Therefore, it is possible to identify and assess the stakeholders on the basis of their place, their regional ecosystem and their effect on the ecosystem. There are six main stakeholders that affect the entrepreneurial ecosystem: big companies, non-governmental organizations, universities, investors, public institutions, and local media.

Big companies are one of the main stakeholders of the local entrepreneurial ecosystem and are crucial for the functioning of the entrepreneurial ecosystem. Such companies can become important role models for the entrepreneurs with their success. Besides, big companies that have corporate entrepreneurship activities can invest in entrepreneurs or buy ventures (corporate venturing). Additionally, big companies can do their promotional activities by sponsoring events like entrepreneurship trainings. One of the most important effect channels of the big companies to entrepreneurship activities is buying services or goods from new ventures. Especially big companies that take contributing to regional development and entrepreneurship as a mission, have the chance to be the customers of new ventures in this way. While big companies that will affect the entrepreneurship in the region may be located within the region, it is also possible for them to be located outside the region and maintain relations with the entrepreneurs in the region. When identifying existing and potential big companies that will affect entrepreneurship, their role in this regard should be taken into consideration and companies should be assessed through these criteria.

Another important stakeholder of the regional entrepreneurial ecosystem is non-governmental organizations. It is important to identify non-governmental organizations that operate inside and outside the region to develop entrepreneurship, and assess their activities. Non-governmental organizations, established to produce social benefit in certain areas, can support entrepreneurship with the purpose of giving economic independence to various vulnerable sections or contributing to regional development. Within this framework, non-governmental organizations influence the local entrepreneurial ecosystem in several ways. Non-governmental organizations may have a direct effect on the local entrepreneurial ecosystem in various areas such as identifying effective entrepreneurs, entrepreneurship mentoring training, putting forward the role models, giving financial support to entrepreneurs and lobbying activities toward designing policies suitable to entrepreneurship.

Identifying universities that are the source of innovation and entrepreneurship in the region and studying their effect on the regional entrepreneurship is an important step in stakeholder analysis in entrepreneurial ecosystem. Universities play an important role in local entrepreneurial ecosystem, especially in individuals' choosing entrepreneurship as a career, developing their entrepreneurship skills, developing their business ideas and getting information on existing supports for ventures. Moreover, universities may aid students in their transition to entrepreneurship by collaborating with incubator centres or accelerators. In addition to all of this, and maybe most importantly, universities lie in the foundation of innovation ecosystem and research in universities can turn into business ideas. For these reasons, universities in the region are located and their activities aiming at developing entrepreneurship such as their entrepreneurship training and incubator centre activities are examined. Furthermore, it is possible to examine universities' research that are innovative and that can turn into business ideas by using the analysis of innovation ecosystem tool included in this toolkit.

Investors are actors that that can mentor ventures in addition to funding them and identifying existing and potential investors in the region is important for understanding the functionality of the ecosystem. As mentioned below in funding of entrepreneurship section, individuals investing in ventures are critical actors in the entrepreneurial

ecosystem. Moreover, these individuals do not only invest but they also use their experience and connections, giving significant support to the entrepreneurs. In this context, existing and potential investors are identified by examining the actors such as big companies inside and outside the region and people investing in international investment funds. Public institutions influence the entrepreneurial ecosystem via the elements of determining public policies and financing entrepreneurship. At the same time, these institutions can help entrepreneurs strengthen their networks by giving connection opportunities with other stakeholders and also provide entrepreneurship trainings. The important point here is to identify only public institutions that affect effective ventures.

Local media is also one of important stakeholders of the entrepreneurial ecosystem. The most fundamental effect of local media on the entrepreneurial ecosystem is making the existing successful entrepreneurs role models and celebrating entrepreneurship. It is possible for local media to encourage entrepreneurship by announcing local entrepreneurship success stories. Local media is also effective in strengthening the connections between the stakeholders in the ecosystem by releasing entrepreneurship activities. Entrepreneurship activities of the local media can be realized through a qualitative research on the media sources in the region. Here, identifying news and announcements about entrepreneurship and critical local media outlets about entrepreneurship is possible by examining the local newspaper, radio and television.

After assessing who the stakeholders in the region are and their effect on entrepreneurship, stakeholders are mapped in three categories. These categories are private sector stakeholders that have a direct effect on entrepreneurship, public sector stakeholders again with direct effect, and local media, non-governmental organizations with indirect effect. It is possible to more clearly understand the effect of the stakeholders on the ecosystem with such mapping.

Indicators and Data that can be used in the Analysis of Entrepreneurial Ecosystem

It is important to use data developed by the agencies along with the existing data sources during the analysis of the elements of entrepreneurial ecosystem. Entrepreneurship and entrepreneurship's effect on the regional level of competition and economic development are relatively new concepts. For the first time, in the 10th Development Plan, entrepreneurship's effect on development was given importance and "Special Expertise Commission on the Development of Entrepreneurship" was established. Moreover, elements of the entrepreneurial ecosystem can be assessed with qualitative data rather than quantitative data. Therefore, existing data sources in entrepreneurship field are fairly limited and it is important that the agencies actively collect data in the analysis of the entrepreneurial ecosystem. In the analysis of the entrepreneurial ecosystem that will be conducted with qualitative indicators, the most important tools to collect data are surveys, interviews and focus group meetings. Development agencies have to play an active role in the use of these tools. Among the missions of the agencies is supporting the small and medium sized businesses and new entrepreneurs.

After the mapping of stakeholders and examining their areas of activity in the region, different meetings are done with these stakeholders and the status of the elements of entrepreneurial ecosystem in the region is identified. Meetings with stakeholders inside and outside the region are done in the form of interviews and focus group meetings. It is useful to conduct focus group meetings separately with stakeholder groups in the levels specified with the stakeholder mapping. In this context, for one meeting several entrepreneurs, big companies, incubator centres, accelerators, R&D centres that support entrepreneurship, and local media representatives in a region attend, the other can be conducted with the attendance of non-governmental organizations, public institutions, and universities. It is important to conduct meetings with entrepreneurship actors outside the region besides the stakeholders in the region. In this regard, in the second part of the stakeholder meetings, it is important to obtain information in the region and in central places like Istanbul and Ankara on companies related to entrepreneurship, angel investor networks, associations and their activities in the region and their interests on the region. It is useful to have second round meetings with stakeholders in order to confirm the findings of these assessments.
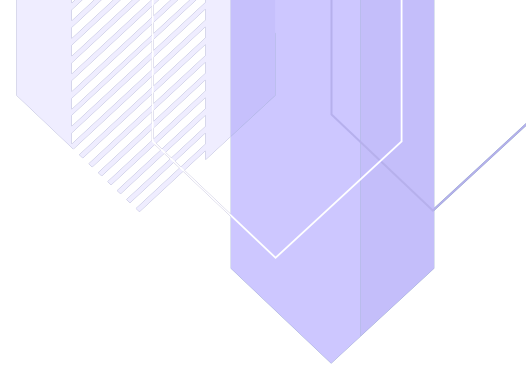
Besides stakeholder meetings, existing data sources are used in the analysis of the ecosystem elements elaborated in the next section. Quantitative data to be obtained in this regard are data from statistical sources that are available to public, and data obtained from primary sources on the entrepreneur profile. In addition to these and the data obtained from the meetings, data from studies conducted within the regional plans can also be used. Data sources that can be analysed for the local entrepreneurial ecosystem are shown in Table 49.

Table 49: Analysis of Local Entrepreneurial Ecosystem Indicators and Sources

INDICATOR	SOURCE
Entrepreneur activity indicators	TURKSTAT business demographies, SGK Monthly Bulletin, TOBB Established/Dissolved Companies Statistics
Information about the entrepreneurs in the ecosystem	KOSGEB, applicants of Ministry of Science, Industry, and Technology funding, GEP Turkey contestants, incubation centres in the region and supporters, applicants of ALLWorld
Public finance sources data, entrepreneurs can make use of	KOSGEB, T.C. Ministry of Science, Industry, and Technology, TUBITAK , SYDV, TTGV, iVCi
Existing stakeholders in the ecosystem- entrepreneurs, investors, universities, big companies, public institutions, local media	News, reports about entrepreneurship in the region
Obstacles, problems, advantages of entrepreneurship	Stakeholder meetings, interviews
Suitability of the private sector conditions enterprises are in	World Bank Doing Business Report
Global indicators about entrepreneurship, total entrepreneurship activity index, opportunity index based on development	Global Entrepreneurship Monitor (GEM) , Global Entrepreneurship and Development Index (GEDI), specially conducted surveys
Sources of finance of the companies in the region	Investment Climate Assessment Surveys
Ratio of access to finance and cost of finance hindering the companies	Investment Climate Assessment Surveys
Available human resource in the regions: undergraduate, master's, doctorate degree holders	TURKSTAT, Investment Climate Assessment Surveys
Innovation indicators of the regions (patent applications, patent registries, innovation steps and their types, number of companies in TDZs etc.)	Investment Climate Assessment Surveys, innovation ecosystem section of the toolkit, TPI, TDZs
High technology coefficient	Milken Institute LQ calculations TURKSTAT city-based export data,

In addition to the data obtained from existing data sources and interviews, a survey aimed at local specialists related to entrepreneurship, to understand their opportunities and limitations in the entrepreneurial ecosystem can also be conducted. Among the methods to conduct such a survey is the survey methodology used by the Global Entrepreneurship Monitor (GEM). This survey presents the local specialists 100 indicators under 17 titles such as financing of entrepreneurship, public policies and programs, education, innovation, level of openness of the local market to home and foreign markets, infrastructure facilities, point of view on the entrepreneurs in society, and workers' interest in entrepreneurship.

Analysis of the Entrepreneurial Ecosystem Elements

The functioning of the entrepreneurial ecosystem is not solely dependent on the framework conditions. It is possible for the ecosystem to function without all of the framework conditions coming together perfectly. Negative effects of the bottlenecks that will occur in some framework conditions can be lessened through the strengthening of the ecosystem elements. Therefore, this section of the toolkit focuses on the analysis of the ecosystem elements and the identification of strengths and weaknesses of these elements. In order to achieve this, besides indicators and data mentioned in the previous section, different indicators that can be used according to the analysed element are discussed.

Entrepreneurial ecosystem is comprised of six main elements and these elements' status and the effect entrepreneurship may vary by region. These elements are identification of entrepreneurs with high potential, entrepreneurship trainings where qualifications necessary for entrepreneurship are gained, connections and networks that increase entrepreneurship opportunities, funds that provide resource to entrepreneurs, policies that will create a suitable legal environment for entrepreneurship and celebration of entrepreneurship by making entrepreneurs role models. In some regions one of these elements may be more dominant compared to others and this can have different results on entrepreneurship activities. For example, while entrepreneurship trainings can result in many people trained in that region to start a venture, it may not mean that these ventures will be located there. On the other hand, an existing entrepreneurship network in the region can become an element that lures entrepreneurs outside the region there by enabling connecting with entrepreneurship networks outside the region.

The first phase of the analysis of entrepreneurial ecosystem is identifying existing or potential ventures in the region. For the entrepreneurs to be able to be supported by the stakeholders in the ecosystem, they should first be identified. Here not only the identification of entrepreneurs who have established their business and want to expand is mentioned, but identification of the potential entrepreneurs whose business is in the idea stage or those who have the intention of becoming entrepreneurs but do not have a business idea yet is also discussed. Given this identification, it will be possible for the entrepreneurs to meet mentors, investors, and other entrepreneurs. Moreover, after the identification of these entrepreneurs who may be inexperienced, various training activities aimed at them can be organized. It is possible to identify existing entrepreneurs through ways such as examining TOBB and TURKSTAT industrial statistics, applications from the region to KOSGEB and Ministry of Science, Industry, and Technology for entrepreneurship financing. Besides, in order to identify potential entrepreneurs, it is helpful to examine entrepreneurship and business plan contests. In this regard, applications to GEP Turkey, ALLWorld contests from the region and if available contests held by universities, incubation centres or other institutions can be examined.

Examination of the trainings on entrepreneurship in the region is one of the critical steps of the analysis. Entrepreneurship training help individuals who have, entrepreneurship skill and predisposition take risks from a young age, raise their awareness, and gain experience in developing a business plan. Entrepreneurship training can be examined in two categories depending on its scope. The first one is the technical training that will be given to the individual who has entrepreneurship characteristics. Technical training can be aimed towards administrative matters such as budget, law and development of a business plan that is necessary for sustainability of a venture. The second type of training is the one given to develop entrepreneurship characteristics. Pushing the individuals to develop their creativity, to think outside the box, enable them to gain the courage to take risks and make decisions in uncertain environment aim entrepreneurship characteristics. It is possible to change entrepreneurship training according to the audience receiving it, and it can be given both as part of the curriculum in formal education institutions and in non-formal education as classes. The most important institution within formal education is the universities that are also the source of a lot of ventures. Among the components of the analysis of the entrepreneurship trainings are the place they are given and the examining of their quality. In order to understand entrepreneurship training, level in the examined region, curricula of
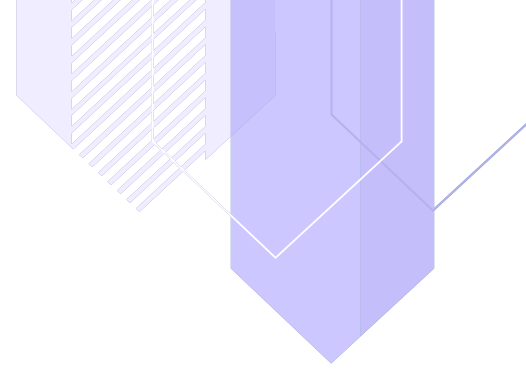
the universities and high schools should be assessed. Apart from these, training activities of the non-formal education institutes such as training centres and vocational centres are studied and their entrepreneurship trainings are mapped. It is possible to examine the quality of the entrepreneurship training within the distinction mentioned above; namely, in two categories as technical training or training aimed towards entrepreneurship characteristics. Besides it is beneficial to analyse the curricula of these trainings, understand if they cover critical issues in entrepreneurship and assess the effectiveness of these trainings. In order to understand the effectiveness of the trainings, what kind of jobs people who completed the trainings do after the trainings and if they engage in entrepreneurship activities are examined. Additionally, education specialists on the subject can be consulted to analyse the quality of the entrepreneurship trainings.

Existing entrepreneurship networks and connections in the region are important elements for entrepreneurship. One of the most important elements that allow entrepreneurs to grow their companies from the start is the connection they have. Having strong connections with other entrepreneurs, mentors, investors and other stakeholders of the ecosystem help them fight some problems they face during their entrepreneurship activities in an easier way. Interaction among entrepreneurs generally enable the entrepreneurs to feed each other's ideas, occasionally form new teams, for failed entrepreneurs to find jobs, and for entrepreneurs who grew their business to start new businesses or investment. The basis of entrepreneur-entrepreneur interaction is their working in the same or close physical spaces. Entrepreneur-mentor interaction enables the entrepreneur to widen his set of information in the starting phase of business, during the decision phase where decisions are made fast and generally in an uncertain environment. Mentors, who are generally senior entrepreneurs or executives, help the entrepreneurs by giving them advice, sometimes help them get funding or develop new business ideas. Besides, mentors can play an important role for entrepreneurs in increasing their connection with investors, suppliers, and other entrepreneurs. Therefore, mentorship is important in increasing the number of ventures and their sustainability. There are various areas where entrepreneurs can connect with each other or with mentors, and when analysing the connections of the entrepreneurs in the region, it is also necessary to analyse the existence of these areas and their structure. Moreover, it is important to identify regional participants and the ones thinking about getting into entrepreneurship by locating such areas in the region and examine areas situated outside the region at the same time. In this way, connection networks of the entrepreneurs who are situated outside but will be important for the region can be examined. Entrepreneurship connection areas are as follows:

- **Incubation centres:** In these places, physical space and support services are given to potential entrepreneurs. Entrepreneurs make use of the mentor network around the incubator centre and develop their business ideas and these centres are generally located in universities. Moreover, these centres can also give seed capital support to entrepreneurs, and house ventures based on R&D in various sectors.
- **Accelerators:** In these places, different from the incubator centres, ventures that have a business plan and a ready founding team and that have made certain way in product developing are accepted and they are aimed to be ready to launch their product in a short time around 3-6 months. Accelerators provide an office space where intensive work take place, constant mentorship and new connection support. Accelerators that function in the format of entrepreneurship bootcamp aim the ventures to be mature enough to get early period venture fund at the end of this time.
- **Common workspaces:** The purpose of these places is not to support activities like mentorship but only to provide entrepreneurs with a common physical space. There can be additional activities aimed at entrepreneurs. The main purpose of common workspaces is that the increased interaction of entrepreneurs through physical proximity contributing to their business idea development. In the examples abroad, common workspaces emerge generally with the transformation of an old industrial building or an urban space turning into an entrepreneurship district after intensive promotional and encouragement activities.
- **Activities that bring entrepreneurs together:** These are events that bring entrepreneurs together regularly and online portals that complement these events through which entrepreneurs come together and share information and experience from time to time rather than interact with each other and the mentors constantly.

Access to funding is one of the most fundamental elements necessary for an entrepreneur to start a venture, and the existence of funding sources of the ventures in the region is important in understanding the regional entrepreneurial ecosystem. Entrepreneurs have different funding opportunities depending on the stages they are in. In Figure 42 different funding sources that meet different needs of the ventures at different stages are shown. Bank credits and initial public offering are funding types that the ventures can use in later stages. Entrepreneurial ecosystem is interested in the development of ventures that are in their beginning, early and development stage, so it is important to study the funding sources of the ventures at these stages. Ventures that are in the first three stages of development have angel investor, venture capital and public finance opportunities. It is important to identify ventures that are different stages in the region and analyse the current status of different funding sources these ventures need.

- **Angel investor:** Real people who provide capital to entrepreneurs, in return for share they will get from their company and also give them personal experience and relationship networks. Angel investors are among the most critical funding sources in the development of local entrepreneurship ecosystems. Angel investors bring experience and relationship networks along with funding to the entrepreneur.

- **Venture capital:** These are funds that give capital to early stage ventures in return for shares and join the management of the company, transfer the funds from the investors to the company and after a while sell their shares and bring the investor the capital and profit back. It is observed that these funds invest in ventures that are at later stages. Moreover, while angel investors are spread in a wide spectrum of sectors, venture capital investments are especially concentrated in a few sectors such as information technologies, biotechnology, and medicine.

- **Public finance opportunities:** Grants or refundable support given by various public institutions.

Figure 55: Funding Sources the Ventures can use According to the Stages
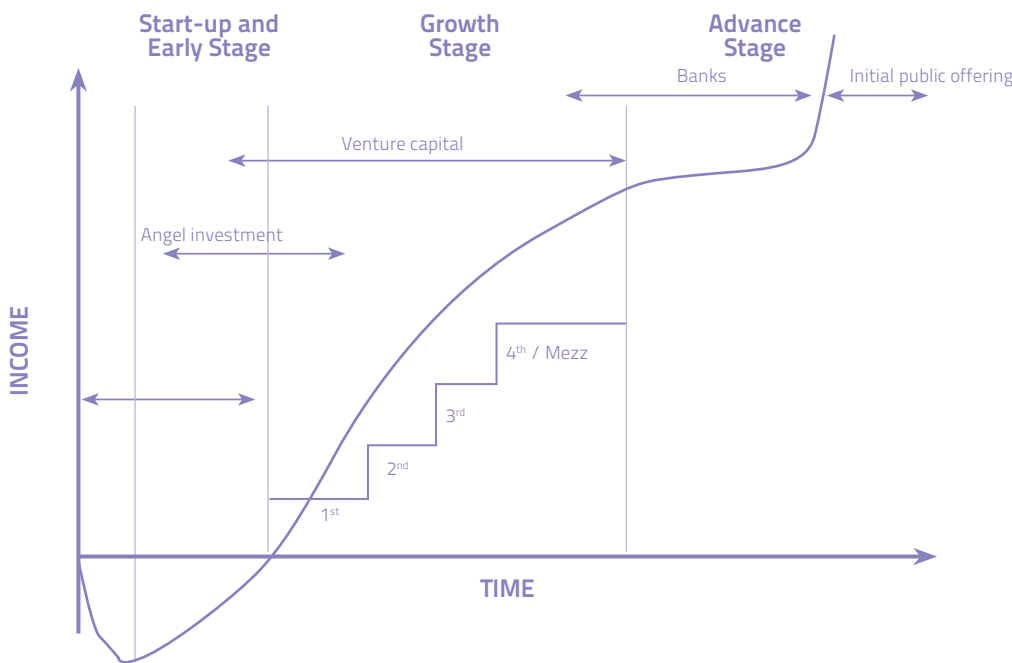
Source: TEPAV

It is seen that angel investors and venture capitals mostly invest in the ventures in their regions. For this reason, identifying existing and potential angel investors and venture capitals is important in understanding the current status of the funding sources. Among the potential investors are prominent businessmen in the region or old entrepreneurs. Apart from this, it is important to identify investors from places with high economic intensity inside and outside the country that will finance the ventures in the region. In this regard, it is also important to identify impact investors that
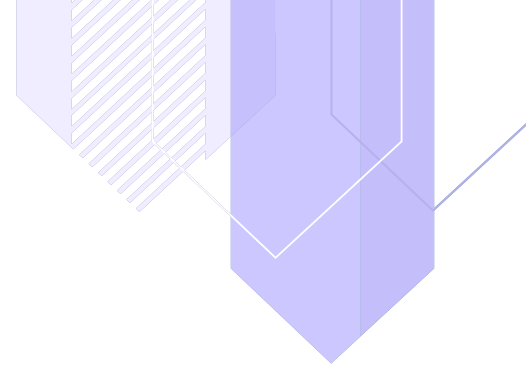
come to the region or that may possibly come to the region, thinking that ventures in the region will directly influence the development of the region. Impact investment is a concept that is being used at an increasing amount and it is the investment the investors make to create social and environmental impact along with financial gain. An important step in this regard is the examination of international impact investments and identification of the actors that can invest in the region. Moreover, it is possible for businessmen who migrated from the region to be the impact investors under "philanthropy."

Public policies aimed at entrepreneurship influence entrepreneurship by providing various supports or incentives. Public policies are mostly determined at national level. Therefore, the effect of public policies to the entrepreneurship in the regions is seen when they come together with the other elements of the ecosystem. When analysing public policies on entrepreneurship, differences between these policies should be taken into consideration. Some public policies concern ventures of all stages. Among these policy areas about doing business are business establishment permissions, building licenses, import and export permissions, land registrations, tax treatments, employment rules, credit processes, protection of the investors and bankruptcy procedures. This type of public policies has more to do with ventures in more advanced stages. As this tool aims for the development of ventures at beginning, early and growing stages, it is important to examine public policies that directly affect these ventures. Some of the active entrepreneurship policies that will affect the ventures that are in the first three stages of their development are fostering angel investment networks, popularizing entrepreneurship trainings, and encouraging entrepreneurship for developing technology.

The capacity to form role models of the regions is assessed by analysing the activities aimed at celebrating entrepreneurship in the analysis of entrepreneurial ecosystem. The public recognition of successful entrepreneurs and honouring them encourage other entrepreneurs and make them see successful entrepreneurs as role models, therefore events where successful ventures in the region are identified and awarded are examined.

Table 50: Elements that Local Entrepreneurial Ecosystem Stakeholders can be Active in

|	Finding	Education	Connections	Fund	Policy	Role model
Big companies						
Non-governmental organizations	X	X	X		X	X
Universities	X	X	X			
Investors (Venture capital funds, Angel investors, Funds of funds and institutional investors Banks)			X	X		
Public Institutions (Development Agencies, Ministry of Science, Industry, and Technology, KOSGEB, TUBITAK, Undersecretariat of Treasury, Municipalities)	X	X	X	X	X	X
Local Media (Media institutions, İnternet sites)			X			X

Background Studies and Assessment

Identifying the current situation of local entrepreneurship and determining program and project for improving it constitute an important part of the competitiveness agenda. Entrepreneurship is a relatively new concept and policies for its improvement have not fully developed yet either. Therefore, examples showing which policies will work in which way are fairly limited. Accordingly, determining the elements that will improve entrepreneurship and later designing program and projects that will strengthen these elements are an effective method for increasing entrepreneurship. In this regard, this tool aims to understand the determinants of entrepreneurship through the analysis of entrepreneurial ecosystem. Determinants of entrepreneurship consist of many closely related elements. Framework conditions of entrepreneurship are the main determinants of business doability in that region and it is possible to obtain information on framework conditions by using different parts of this toolkit. This section of the toolkit focuses on the analysis of entrepreneurial ecosystem elements and stakeholders. In this way, it is aimed to reveal the regions' strengths and weaknesses about entrepreneurship by analysing the ecosystem elements and role of the stakeholders that can be different in each region.

Analysis of the entrepreneurial ecosystem should be assessed in interaction with other sections of the toolkit. It was mentioned before what sections of the toolkit are to be used to understand framework conditions. Besides, the analysis of entrepreneurial ecosystem can provide input to other tools. Entrepreneurial ecosystem is among the determinants of a region's investment climate. For example, if a region is providing a suitable climate for entrepreneurship, the investor may benefit from the experience of the entrepreneurs there and invest. Moreover, entrepreneurial ecosystem elements and stakeholders are also influential in a region's or an industry's value chain. Therefore, understanding the current situation of ecosystem elements and stakeholders is one of the elements that will help understanding local actors in value chain analysis better.

It is useful to do some background studies to strengthen the analysis of entrepreneurial ecosystem. It is also important that the aforementioned background studies are conducted with the coordination of development agencies and current situation studies are detailed.
- It has been previously stated that there are framework conditions for analysis on doing business in places of which entrepreneurial ecosystem is analysed. In order to understand these framework conditions better, firstly it is necessary to conduct the analyses in the mentioned tools of the region. Moreover, works of other institutions and organizations should be examined and it has to be ensured that current status of the framework conditions is understood well. Additionally, comparison of framework conditions with similar and competitor provinces would strengthen the current status analysis.
- Entrepreneurial ecosystem analyses the current status of the required conditions for a venture to develop in a region. This analysis can be supported by way of doing research on the incentives and problems existing ventures in the region face. Fast-growing ventures in the region are identified and the bottlenecks these ventures encounter are analysed by using ventures' sources that are open to public and face-to-face interview methods. The bottlenecks that are identified can later be prioritised in program and project development stage, also taking the region's competition agenda into consideration.

Figure 56: Identification-strategy formulation-implementation
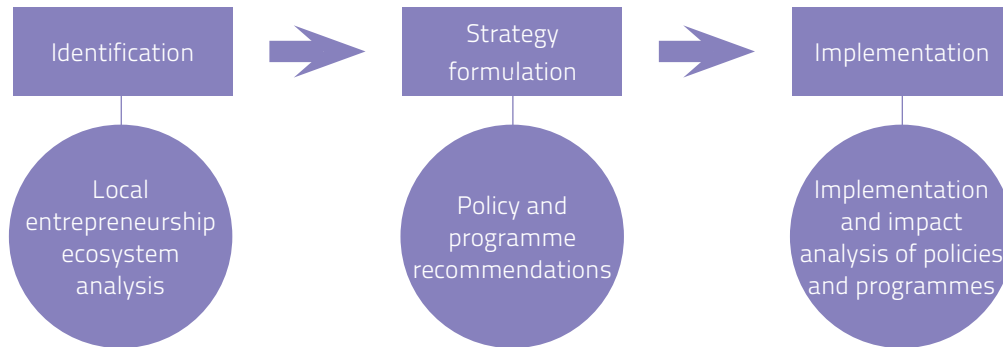
It is important that the entrepreneurship development process is carried out in the order of "identification-strategy formulation-implementation." Identification stage is an analysis of the current situation. It enables to see the current situation of entrepreneurship, its strengths and weaknesses. By using the identifications at this stage "strategy formulation" is done in the next stage. Projects and programs are designed that eliminate the weak points seen here and highlight the strong points. The third stage is the implementation of the designed projects and programs. In this tool, a proposal is made for the "identification" part, which is necessary for the improvement of entrepreneurship. Following the identification stage with program and project design is a critical step in eliminating the identified bottlenecks. Later, conducting a feasibility study for these program and projects and foreseeing the applicability of them is important. Moreover, assessment of the effects of the implementation of these program and projects, the problems of the strategy stage can be solved and thus this will increase the effectiveness of the policies aimed towards the development of entrepreneurship.

Effective entrepreneurship that is mentioned in this tool is important for its contribution to regional competition level, but the analysis of social entrepreneurial ecosystem that can directly affect regional development will be important for development agencies. As mentioned in the first section, social entrepreneurship is ventures established to create a social impact. This type of entrepreneurship is rather new in the world and especially in Turkey and mostly navigated by non-governmental organizations. However, social ventures outside of this structure have also started to form and this subject has started to be talked about at a public level. Social ventures' ecosystem, framework elements and stakeholders shall be more different than effective ventures, and their functioning will differ as well. Therefore, it is also possible for development agencies to conduct an ecosystem analysis to see the current status of social entrepreneurship and identify opportunities for its improvement.

9. QUALITY OF LIFE ANALYSIS

9. QUALITY OF LIFE ANALYSIS

Table 51: Quality of Life Analysis Summary Table

Purpose of Use	1. Identify the quality of life that is a result of the economic development 2. Formulate a framework for actions to improve quality of life 3. Identify the elements that will make region a centre of attraction for the labour that will ensure the economic transform
User Profile	Competent experts in statistics, sociology and economics
Method	1. Assessment of existing life quality indices 2. Socio-economic mapping 3. Composing citizen scorecard (survey activities) 4. Analysis of causality between firm performance and quality of life
Potential Outputs	1. The level of life quality in the region on the basis of different priorities 2. Quality rank of the region in the competitive environment 3. The strategies and policies to develop quality of life
Relevant Entities and Stakeholders	TURKSTAT (Turkish Statistical Institute), SGK (Social Security Institution), OSYM (Assessment, Selection and Placement Centre), Municipalities, various institutions on the basis of Indicator selection
Critical Issues	Diligent review of the internal dynamics of the region while choosing the index to be used as criterion

Quality of life generally means the well-being of individuals and societies. The said idea of well-being is a relative concept; that is, it can vary by individuals and circumstances. Due to its subjective characteristics, it is difficult to measure. However, given that the phenomenon of life quality is of critical importance for the competitive capacity of a region, the concept of well-being should be measured in a way that it can shed light on policy priorities. This section of the toolkit provides a framework of analysis with a view to strengthening the quality of life aspect of the regional competitiveness agendas.

Although academic debates on which areas the quality of life and competitiveness intersect continue, analyses are carried out through elements on which scholars agree. Quality of life is important for the regional competitiveness on the grounds that it attracts qualified labour as well as entrepreneurs and investors to a region. For instance, attracting the labour with high level of training and skills, necessary in a province aiming at increasing the production and export of hi-tech products, is possible not only by way of providing material benefit for the individual through employment also by raising the province to a condition that it can provide that individual with the necessities in regard to quality of life and sociality. Particularly in 1990s, with the composition of Human Development Index, the quality of life is considered one of the indicators of regional development. In other words, the quality of life is examined as a result of economic development and as a target on its own. This emphasis is seen in the regionals plans prepared by Development Agencies. The following are the basic benefits of raising the quality of life:

- **Increasing human capital in the province:** Being able to attract qualified labour to the region and to form a dream of future for the potential labour in the city;
- **Increasing social capital:** Composition of social networks in the region, ensuring the spread of information and increasing the participation in the organization of life;
- **Building a livable city:** Ensuring the appropriate standards in such manners as access to fundamental services and the quality of such services, opportunities for self-realization, settlement quality, a safe and healthy environment, governance quality and environment quality.

It is important to note what the notion of "well-being" which is the fundamental determinant of quality of life denotes at the individual and societal level. Therefore, common perception and priorities of the province/region where quality of life analysis is to be carried out will be determined. While composing a framework on what the notion of well-being means for the region, general characteristics given at Figure 57 may be used.
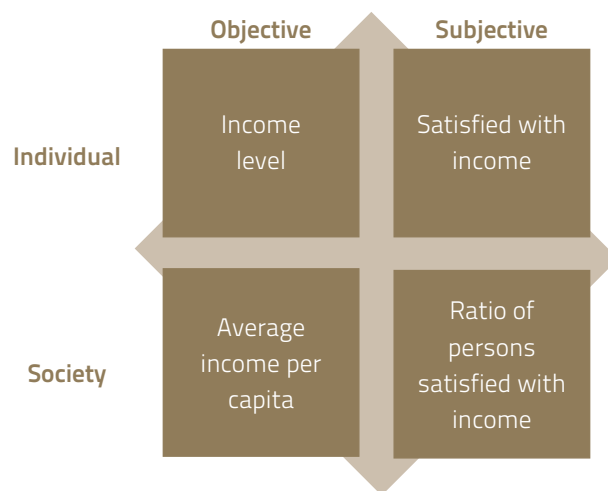
Figure 57: Framework for Approach to Well-Being

|			
One defines what good life is	Good gives pleasures	Good meets needs	Good is what is healthy
Good is what is useful	Good is what enables one's rights	Good is what is valuable	Good is to what extent one's desires are realised
The higher the subjectivity is, the more difficult is to answer what needs to be done collectively			

Source: TEPAV

Quality of life has four aspects that are subjective, objective, individual and social.[1] For an ideal analysis of quality of life, it is recommended that the same topic be assessed on the basis of four aspects. For instance, as shown in Figure 58, when the issue of income is evaluated on objective basis at the subjective dimension, the income level of the individual is examined; when the same topic is assessed on subjective basis, whether the individuals finds the income satisfactory or not is examined. When the same topic is dealt with on social basis, the average income per capita in the province/regions is analysed, the ratio of individuals in the society who find their income satisfactory on subjective terms is assessed.

Figure 58: Four Aspects of the Quality of Life Analysis

	Objective	Subjective
Individual	Income level	Satisfied with income
Society	Average income per capita	Ratio of persons satisfied with income

Analysis of quality of life uses many groups of indicator and data. Regional priorities in selecting subjective indicators are set by consulting the opinion leaders knowledgeable about the region. Experts from development agencies contribute to the process through their observations and experiences on the region. In choosing objective indicators, the indicators commonly used in the existing studies on quality of life as well as other objective indicators considered important for

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[1] Tekeli, İlhan (2010). *Writings on Daily Life, Quality of Life ve Locality.* İstanbul: Tarih Vakfı Yurt Yayınları.
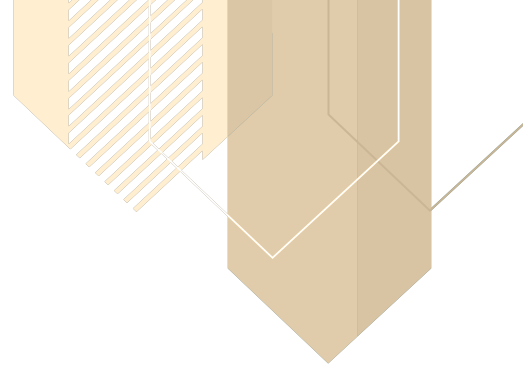
the region are examined. For instance, in an analysis on the local government services, while the local government expenditure per capita is an objective indicator, satisfaction with the local government services is a subjective indicator.

Comparability of indicators chosen for analysis to the provinces with which the region competes is important. Carrying out such comparison is crucial both for the identification of the location of the region in terms of quality of life and the competition with the provinces the regions interacts as well as for the awareness about the various benefits to be gained from the relationship between the region and the provinces. For instance, high level of cultural and art activities near the area under scrutiny indirectly raises the quality of life in that area.

Figure 59: Steps in Quality of Life Analysis

STEP 1	STEP 2	STEP 3
Finding competitor provinces	**Examination of Indices and Derivation of New Data**	**Identification of areas of first priority**
1. Finding provinces whose structures are similar with regard to the topics of priority in the analysis of production, export or quality of life	1. Examination of the general rank both in the existing indices and sub-indices	1. Examination of reasons for underdevelopment if the province falls behind in some of the sub-headings under quality of life
2. Finding already other regions for the vision of the region (Both from Turkey and abroad)	2. Reproduction and analysis of quality of life indicators and indices that are not included in the existing indices but that are critical for the region.	2. Findings for the development of undeveloped areas

Finding Competitor Provinces

A method that can be used in identification of the provinces with which the region compete is to analyse the basic indicators selected to determine the quality of life in a province and to identify the potential competitors with similar results. Just as potential competitors can be the provinces/regions with which a province is already in competition, they can be places that have reached the vision of that province and is expected to be a competitor in the future. A method used to determine these competitors is the analysis of existing indices of quality of life or the sub-indicators of those indices. Another method is the calculations designed according to the regional priorities on the basis of existing/collected data. At the next stage, the competitor provinces are identified with the contribution of the opinion leaders, stakeholders and development agencies from the provinces whose results of analysis are determined. Moreover, the provinces having already reached the regional vision in terms of quality of life are identified and comparisons with those provinces are carried out.

Another fundamental method in the identification of competitor provinces is the comparison of the region/province with those which have the similar commercial structure to that of the region/province in question and which have reached the regional vision. For the identification of those provinces, the method of product space in the "The Analysis of Production and Export Structure" tool under the toolkit is used. Calculations are carried out for all provinces and

provinces demonstrating close convergence are evaluated within the scope of competitor provinces. Additionally, the provinces having already reached the regional vision are identified through the same method.

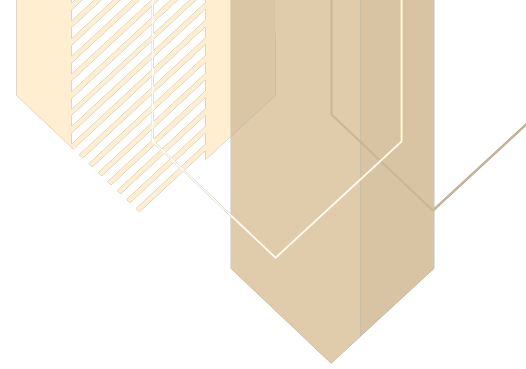## Existing Quality of Life Indices and Indicators

As previously stated, in quality of life analysis various indicators that depend on the purpose and perspective can be used. Data sources for basic indicators that are selected for that purpose are demonstrated in Table 52. In addition to those indicators, the indicators of the index studies on the national basis as well as indicators derived through compilation from fundamental data sources are deployed.

It is useful to reproduce subjective indicators on national/regional basis by collecting data through surveys. The information regarding the technical structure of survey research is given in Section 4, included within the scope of skills set of the toolkit. Besides, composing indices and indicators as part of quality of life analysis toolkit, data collection is explained within the context of quality of life through the methods of citizen scoreboard and socio-economic mapping.

Table 52: Quality of Life Basic Indicators and Sources

INDICATOR	SOURCE
Access to Education, access to health, conditions of residence	Ministry of National Security, High Education Board, Ministry of Health, Special Surveys, European Quality of Life Surveys (EQLS),
Export per capita	TURKSTAT
Economically active population by age groups	TURKSTAT
The ratio of the population uncovered by social security to the population of the province	Social Security Institution, TURKSTAT
Number of hospital beds per one hundred thousand people	TURKSTAT
Total crime rate per capita	TURKSTAT
Average newspaper sale per capita	YAY-SAT, TURKSTAT
Average number of theatre audience per capita	TURKSTAT
Average value of sulphur dioxide	TURKSTAT
Residence, library and number of books, number of seats in theatre halls, number of seats in movie theatres per capita	TURKSTAT
CNBC-E quality of life index	CNBC-E
Research on the socio-economic development of provinces	Ministry of Development
Sustainability Projects of Provinces	Boğaziçi University and Mastercard

Fundamental data for quality of life analysis are derived from TURKSTAT and relevant public entities. Statistics regarding registered employment as part of the official statistical program, environment statistics, crime statistics, health services, education opportunities etc. are some of the said fundamental data. Besides, data collected via such surveys as household and life satisfaction conducted by TURKSTAT are among the important input that can be used as part of analysis.

In quality of life analysis on the region, employment of the national indices and indicators that have been previously applied or that are still applied is a more effective method. Concordantly, different studies that could provide useful inputs for quality of life analysis are also evaluated as the studies directly focusing on the quality of life analysis can be examined. If these indices are directly compatible with the regional priorities, they are directly used. Moreover, new indices and indicators are produced by jointly using two or more indices or assessing the outputs of basic and sub-indices. Some of the principal indices and indicators that can be used are Boğaziçi University and Mastercard Research on Sustainability of Provinces, Socio-Economic Development Index prepared by Ministry of Development, Turkish Investment Climate Surveys, CNBC-E Quality of Life Index and Istanbul Development Agency Global Competitiveness Project. The scope and outputs of the first three studies are given below.
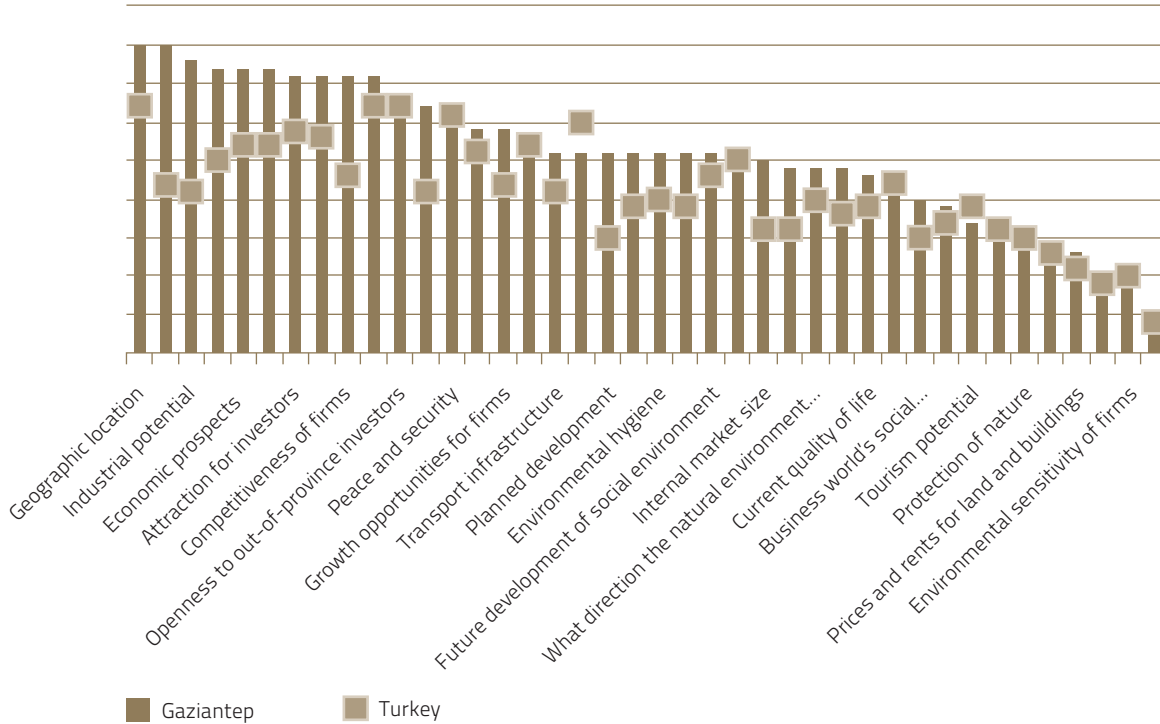
- **Boğaziçi University and Mastercard Research:** In addition to analysing the sustainability of provinces through objective criteria as part of the research, economic, social and environment performances of provinces are evaluated from the perspective of the business world by means of a survey a study encompassing NUTS 2 regions and metropolitan municipalities. In the index of sustainability of provinces composed through objective criteria, 19 main indicator sand 63 indicators in total for three sub-indices were used. As a result of the research, each sub-index score for each province is provided as can be seen in Table 53 and the provinces are ranked accordingly (Table 54). For GAP Region and Izmir, provincial scores for each sub-index, main index and composite index are shown.

Table 53: Scores of Provinces Selected from Research on Sustainability of Turkish Cities

Province	Economic Performance	Social Performance	Environment Performance	Sustainability	Quality of Life
Adıyaman	17	42	42	34	44
Batman	12	40	41	31	41
Diyarbakır	14	36	52	34	40
Gaziantep	30	49	57	45	40
Kilis	20	45	42	36	43
Mardin	11	30	44	28	43
Siirt	9	38	43	30	41
Şanlıurfa	11	38	44	31	44
Şırnak	5	29	45	26	40
İzmir	55	72	74	67	66

Source: Boğaziçi University and Mastercard Research on Sustainability of Turkish Cities, April 2011

Figure 60: Subjective Results of Research on Sustainability of Cities for Gaziantep


■ Gaziantep   ■ Turkey

■ **Socio-Economic Development Index (SEDI):** Eight sub-indices in total including demographic, education, health, employment, competitive and innovative capacity, financial capacity, accessibility and quality of life are used in SEDI issued by the Ministry of Development. According to results of 2011 SEDI, the situation of provinces included in this toolkit are given in Table 54.

Table 54: SEDI-2011 Rank of Selected Provinces

PROVINCE	SEGE-2011 RANK
Adıyaman	66
Batman	70
Diyarbakır	67
Gaziantep	30
Kilis	63
Mardin	74
Siirt	77
Şanlıurfa	73
Şırnak	78
İzmir	3
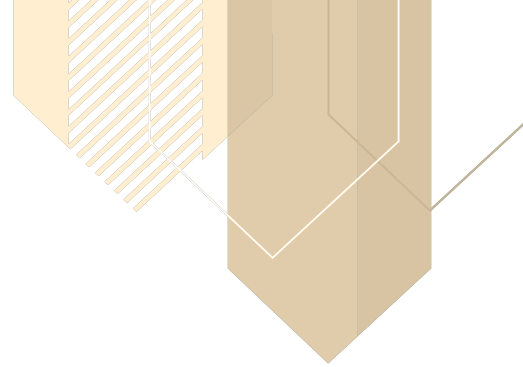
Investment Climate Assessment Turkey Surveys are useful tools to be able to integrate the private sector perspective to the quality of life framework of the region. Investment Climate Assessment Surveys provide information on security, women employment and etc. that can used as part of quality of life analysis. These surveys are prepared for the purpose of directly contributing to the quality of life and provide supportive information for the indicators used in quality of life analysis.

Figure 61: Ratio of Acquisition of Private Security Services by Firms (%)
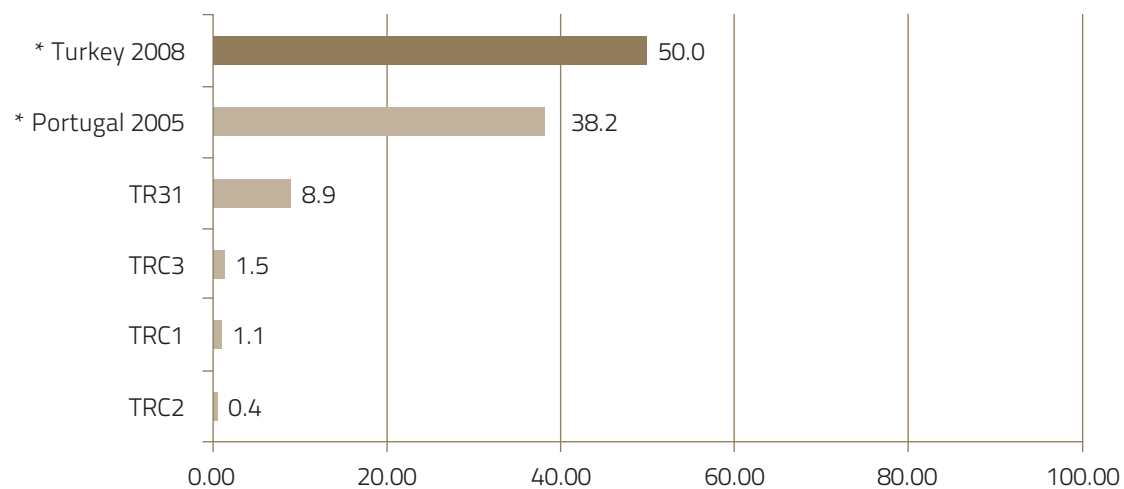
Source: UNDP GAP Investment Climate Survey, 2013

International Indicators Sets

In addition to national indicators, following international indices and indicators is illuminating. The data on Turkish provinces at the international indicator sets may be directly used or the data belonging to the sub-indicators in those sets are used. The detailed methodology of some of the international indicator sets is given below to exemplify the scope and method of quality of life analysis.
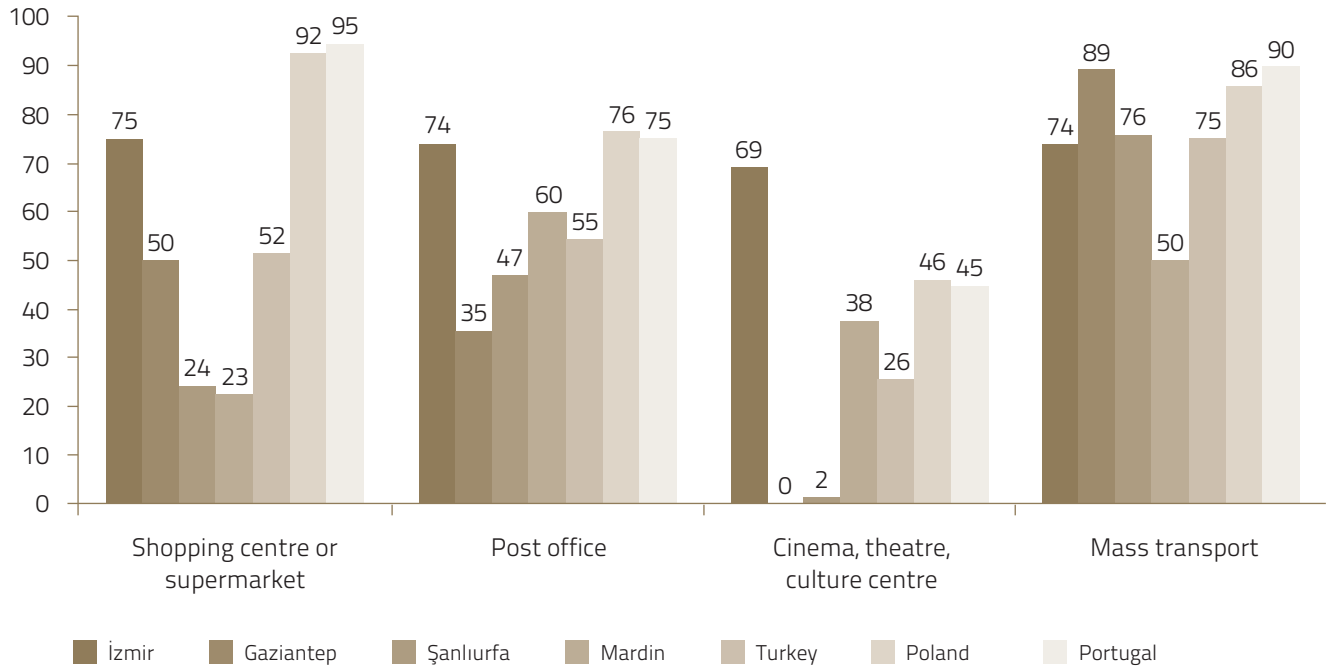
- **Urban Audit[2]:** Since 2003, the study has been issued in every 3 year. The study that started with 15 countries in 2003 contained 30 countries and 58 cities in 2006 and 31 countries and 908 cities in 2012. There are 26 cities from Turkey in the research. Given its general structure, Urban Audit consists of objective indicators. Such indicators as single parent families, the percentage of those living in women's shelters, and time spent while commuting to workplace are some of the striking indicators that can be benefitted from this source.

- **Gallup World Poll[3]:** The research has been issued annually on various topics since 2005. It includes 2015 indicators from 13 different categories. The research includes such striking indicators as nature-friendly practices, minorities and discrimination, personal worldview, ethics and moral values that are compiled through surveys.

- **European Quality of Life Surveys (ELQS)[4]:** The research was conducted in 2003, 2007 and 2012. In addition to 28 EU Member States, it includes the Former Yugoslav Republic of Macedonia, Norway and Turkey. The research including 171 indicators in total contains various subjective indicators collected through surveys and uses assessments on objective indicators from different perspectives.

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[2] http://www.urbanaudit.org
[3] http://www.gallup.com
[4] http://www.eurofound.europa.eu/areas/qualityoflife/eqls/

Figure 62: Opportunities in the Inhabited Environment (%)

Legend: İzmir, Gaziantep, Şanlıurfa, Mardin, Turkey, Poland, Portugal

Source: European Quality of Life Surveys, 2007

## Production of Indices and Indicators for Quality of Life Analysis

In addition to using existing quality of life indices and indicators, new indicators are produced and new data are gathered. In this regard, collecting data similar to those in the international indicator sets on provincial and regional basis and regularly updating those data allows for comparison of that province/region to the place whose data are known. Existence of the international indicators (mentioned in the section of International Indicators Sets) for many countries and regions is an important advantage. Data for such indicators can be collected on regional and provincial basis and benchmarked, thus differences in quality of life with the competitor regions or similar regions can be observed. To that end, the indicators that aimed at analysis are determined among the international indicators and their inclusion in a quality of life analysis that will be carried out on regional and provincial basis is regarded. The most important example for this is UNDP-GAP Investment Climate Assessment Surveys as well as the opportunity to compare the results obtained from these surveys to those of similar countries by using national data.

While single-handed analysis of indicators allows for analysis of the features on which a quality of life analysis aspires to focus, indices compose a general view on quality of life in the region and allows for comparison between provinces/regions. It is possible to reproduce new indices for quality of analysis in accordance with the quality of life priorities by using existing data and composing new data. Connectivity Analysis may be used in regard to how to carry our weighting while producing indices. Additionally, by using indexing methods in national and international quality of life analysis mentioned in previous sections, the province/region that is being analysed is compared to its competitors.

An example for activities that can be carried out as part of reproducing new indicators is socio-economic mapping developed by TEPAV. While most of the existing analyses provide information on country, region and province bases, they do not give information regarding the differences in quality of life among such regions as district, village, neighbourhood of the same province because quality of life may not be same everywhere within provinces. It is important to identify

the differences in such sub-regions as district, village and neighbourhood of a province. To that end, regional socio-economic map is created by placing the data on the socio-economic status on the regional map in a way that they will reflect the intra-regional differences. The intra-regional differences can emerge due to spatial differences as well as differences among provinces, districts, neighbourhoods and villages. As an example, Figure 63 shows the average education year in different neighbourhoods of Antalya. This map clearly demonstrates the points that may be neglected by looking the province in general terms while analysing the education level as part of quality of life analysis in Antalya.

Figure 63: Average Year of Education by Neighbourhood in Antalya

9.1-11.5
8.3-9.1
7.6-8.3
6.8-7.6
0-6.8
Veri yok

Source: TEPAV Hesaplamaları
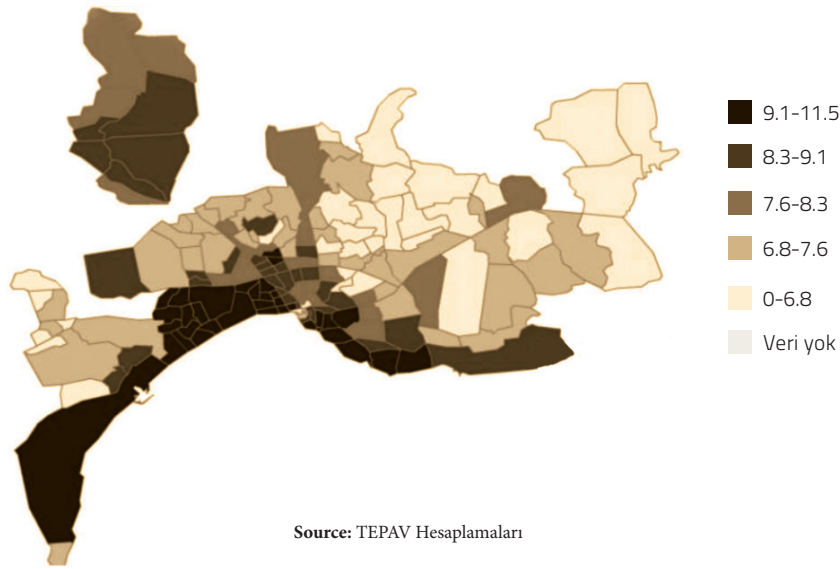
One of the study examples that will provide inputs to quality of life analysis in citizen scoreboard studies developed by TEPAV. Citizen scoreboards aim to understand the assessments of citizens using public services and to measure the performance of service providers affecting quality of life. Accordingly, surveys with citizens are conducted. Through these scoreboards, comparisons among services providers in the region and by years are carried out. Furthermore, these surveys ask citizens about their opinion on public services, thus ensure the identification of their level of awareness about their own liabilities. Therefore, citizens scoreboards are an important quality of life indicator regarding the quality of services provided in regions. The stages of citizen scoreboard study are demonstrated in Box 17.

Box 17: Stages in Creating Citizen Scoreboard

1. Building working group
   - ➤ Central government, local government, civil society, university
2. Determining the scope of citizen scoreboard
   - ➤ Which services, fundamental questions regarding services
3. Focus Group Study (Service Users)
   - ➤ Determinants of the service quality
4. Interviews with service providers
   - ➤ Determinants of the service quality
   - ➤ Direct informing
5. Identification of analysis regions
   - ➤ Constructing homogeneous analysis regions similar to NUTS levels within the city
6. Composing questions
   - ➤ Acquiring result indicators from national and international sources
7. Fieldwork
   - ➤ Under the surveillance of working group
8. Pre-reporting and mapping
9. Analysis of results with working group
   - ➤ Comprehension of causalities, association
10. Acquiring feedback from service providers and reporting
11. Releasing to the public and watching

While existing data and indicators may provide a general view on the quality of life, they can be inadequate for a quality of life analysis related to competitiveness. The abovementioned existing indicators of quality of life focus more on the human development. However, the quality of life in relation to competitiveness of the region is related to, as mentioned in the first section, increasing the human and social capital in the province, thus making the province as a place of attraction for qualified labour, investors and entrepreneurs. Therefore, it is useful to examine the criteria of quality of life that can attract "the creative class."[5] The creative class denotes people who can produce new things in science, technology and art and play an important role in the economic growth. This group of people consists of scientists, engineers, professors, architects and artists. The indicators for human development compose a liveable habitat for "the creative class" but they are inadequate to attract those people to that region. Hence, it is important to identify the criteria for quality of life that can attract "the creative class," to compose indicators in this area through agencies, and to collect data. A prominent method to construct those indicators is survey and technical information for surveying activities are provided in the Skills Set Analysis in this toolkit. Besides, an example for quality of life analysis created as a result of Citizen Scoreboard Surveys, which TEPAV developed, is provided above.

Before analysing the criteria that can attract "the creative class" to the region, the existing ratio of these people in the provinces and employment opportunities in the profession groups of "the creative class" in the region may be evaluated as well as which target audiences outside the region should be focused on. The evaluation of the existing situation shows how much the region can attract "the creative class" through its existing characteristics. Besides, by comparing these indicators to the competitor provinces/regions, hence the problematic areas can be identified and the reasons for those problems can be searched in the further studies. The current situation of profession groups of "the creative class" in provinces/regions are examined by means of province and region based profession data derived from Household Labour Force Surveys. Moreover, the analysis of the fields of professions or open positions in "the

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[5] Florida (2002). The Rise of Creative Class
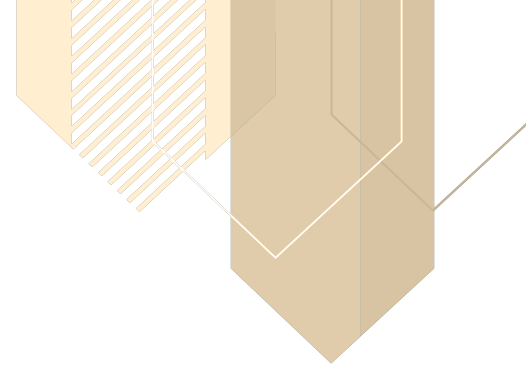
creative class" profession groups shows the employment opportunities in these fields in the region. Such an analysis is conducted through career portals. The data in Figure 64 derived from www.kariyer.net, a professional career website, demonstrate the open positions in engineering in the cities[6]. According to this figure, the number of firms in Sheffield and Birmingham looking for engineers is much more than those in the provinces that are analysed.

Figure 64: Ratio of Vacant Positions in Engineering by Selected Provinces per One Hundred Thousand People (%)
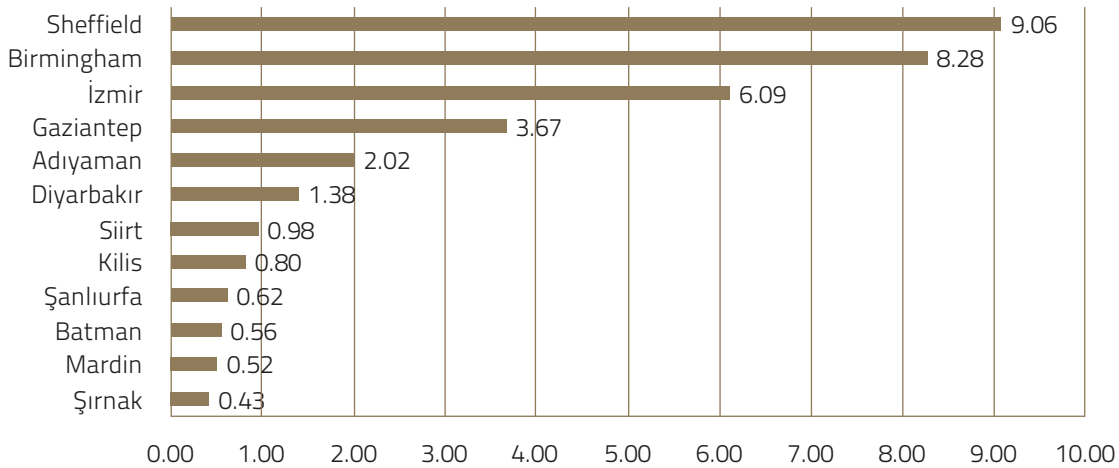
Source: Number of Positions in Turkey: Kariyer.net Database; England Monster Database, TurkStat 2012 ABPRS, March 2013.

One of the noteworthy indicators in the quality of life analysis in terms of competitiveness agenda is the variety of cultural and entertainment activities in the region. Variety is defined as one of the characteristics of a place where "the creative class" lives[7]. Certain data on the cultural and entertainment activities within the framework of quality of life analysis and the sources of those data can be found in Table 52. Additionally, new data sources can be used in order to understand the variety of such activities. The members of *www.foursquare.com*, a social networking site, use this site to notify their location, to give points to that place and to comment on it. For instance, this source can be used to understand the restaurant diversity in a given region. Figure 65 shows the variety of food spots that composed through *foursquare*.[8] According to that figure, the variety in the industrialized cities of England, Sheffield and Birmingham, is much more than Gaziantep and Izmir. Although variety is neither the single human source nor the only criterion determining the life choices of investors, when used with other indicators, it aids in understanding the level of quality of life in terms of competitiveness agenda. Existing data used for this purpose are the objective indicators for the variety in regions. Furthermore, in order to understand the subjective judgment for the variety, questions about variety are added to the quality of life survey to be conducted in regions. Another benefit in using such data sources is the cost and the easy access to the data that can be collected through more intensive fieldwork.

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[6] This is the proportion of open positions to the population in these provinces. It shows the number of open positions per one hundred thousand people.

[7] Florida (2002). The Rise of Creative Class. Other characteristics that the creative class looks for in the area they live is individuality and meritocracy.

[8] For the calculation of this variety, the first 10 food spots where people entered most notifications in the region are ranked and the cuisines (Turkish cuisine, Italian cuisine etc.) of these spots are analysed. This analysis then is proportioned to the number of people who entered notifications in these cities. The ratios in this table show the variety in places per one thousand people.

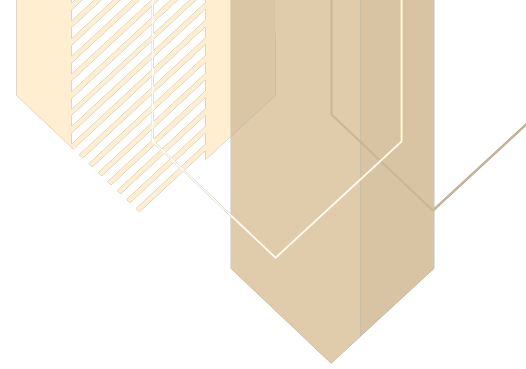**Figure 65: Variety of Food Spots by Foursquare Notifications**
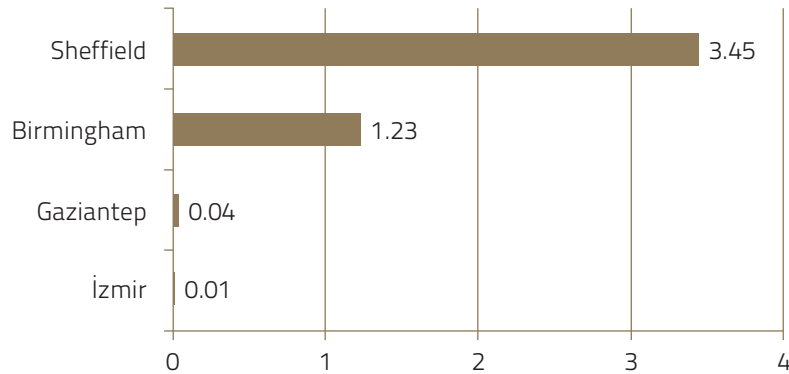
Source: Foursquare location notifications, March 2013

One of the elements that will attract "the creative class" to the regions is the connectivity of the region. The level of connectivity of the region is also examined in the quality of life analysis. A region with a developed level of connectivity in terms of transportation provides mobility for its inhabitant and plays a role in attracting qualified labour and investors to the region. The connectivity that attracts the creative class to the region is airline transport and express train facilities. For instance, if there is an express train facility in an economy-intensive place, those in this group reside outside the centre of the intensity and they commute to the centre and work there. In the Connectivity Analysis section in this toolkit, connectivity analysis in terms of transportation and its importance for the competitiveness agenda are discussed.

Background Studies and Assessment

At the end of quality of life analysis, on the one hand the human development level of the region is identified; on the other hand the aspects that are to affect competitiveness are understood. Quality of life analysis, first of all, is used to understand the human development level of the region, to identify the problems in this development and to develop policies for those problems. Moreover, quality of life analysis is carried out by taking into consideration the impact of quality of life on the regional competitiveness. Within that scope, the power of attraction of the region with regard to qualified labour, entrepreneurs and investors is evaluated. At the same time, findings are compared to those of similar or other competitor provinces or countries and the current position of the region/province is more clearly understood. Moreover, by way of analysing quality of life at the regional and provincial levels and national priorities are compared with the current situation in the provinces and compatibility and differences between them are observed.

The method of quality of life analysis and the indicators to be examined and the studies to be carried out for that analysis depend on the purpose of the analysis. Therefore, before starting quality of life analysis, it is useful to designate the purpose of the analysis and formulate the analysis accordingly. When the purpose of quality of life is to examine the development level of a region, human development indicators are analysed. While the objective indicators are more pertinent to understand socio-economic development of a region, for the relationship between quality of life and competitiveness, more different and subjective indicators are deployed. For instance, in the quality analysis of health services, social and objective indicators such as average number of beds in the hospitals of the province in question give a general view on the situation of the region. Additionally, quality of life is also related to the satisfaction of the persons with their life in that region, thus the analysis should be supported with objective and subjective indicators. In addition to the statistics about hospitals, the level of satisfaction who benefit from such services is also taken into consideration.

Existing data sources can be used in the analysis but finding new data sources and reproduction of new data within the scope of the relationship between quality of life and competitiveness is also important. This tool refers to the existing data sources that can be used. Additionally, by implementing the methodology similar to that in these indicators to the regions they examine, the agencies acquire a general view on the region and analyse the region in comparison with the similar and competitor regions. Furthermore, supporting these examinations with additional studies in accordance with the quality of life analysis is important. An important activity to be carried out within this scope is to identify alternative data sources for the indicators aimed at analysis. With regard to such an implementation, this tool refers to new data sources that can be reproduced via Internet. Moreover, agencies can design and implement a survey appropriate for their purposes and priorities, thus they can reach critical data on quality of life. Also, the repetition of such surveys throughout years is important to realize the changing quality of life and its relation to the competitiveness.

Quality of life analysis is carried out through interaction with the other tools within the toolkit. Accordingly, the mutual contribution among the interacting tools is sustained. By way of analysing the skills set in this toolkit, the levels of education and skills of the employers in the region are determined, which is important for the evaluation of quality of life in the region as a centre of attraction. In addition to that, the analysis on the connectivity is crucial to understand the connectivity of regions. Furthermore, quality of life analysis greatly contributes to some other tools. The entrepreneurship ecosystem that is referred to in the tool for local entrepreneurship analysis can function faster through necessary framework circumstances. One of the framework circumstances that are discussed is geographical and cultural circumstances and for the comprehension of such circumstances, quality of life analysis stands out as a critical tool.

The analysis of quality of life is supported by a number of background and advanced level activities.
  i.   **The step that can be the background of the analysis is the identification of the relevant elements in the regional quality of life and in the regional competitiveness agenda.** Within the scope of the relation with the quality of life and competitiveness agenda, the elements that can attract "the creative class" are discussed in this tool. Although this is an example, it is not adequate to understand the relationship between competitiveness and quality of life. Therefore, identification of different elements that can ensure the comprehension of the relationship between competitiveness and quality of life becomes important for the strengthening of quality of life analysis.
  ii. **It is important that agencies reproduce new indicators and compose data sets in order to understand the quality of life in regions and provinces in relation to the competitiveness agenda.** The existing data resources for the examination of the relationship between the competitiveness and quality of life are limited. Therefore, agencies should identify the indicators and data that will be necessary for such analysis, designate a method to collect them and carry out mapping on neighbourhood, district and province basis through these data. Moreover, the placement of such data in a system that can be followed and compared throughout years ensures the observation of changes to occur in the level of quality of life and competition in the course of time. Additionally, by way of conducting a joint study with other agencies, such indicators can be compared to other provinces and regions.
  iii. **At the end of the quality of life analysis, the problematic areas regarding the quality of life in the region are identified and project and program proposal for the improvement of those areas are developed.** Besides, the feasibility studies on these projects and programs ensure the development of more effective projects. After such projects and programs start to be implemented, the evaluation of their impacts ensures more effective development of future policies.

10. FOR CONCLUSION: HOW TO BUILD COMPETITIVENESS STORIES

10. FOR CONCLUSION: HOW TO BUILD COMPETITIVENESS STORIES

The toolkit presented in this report is devised to contribute to the design of regional competitiveness agendas specifically. However one should not forget that analysis needs vary by regions. Not all tools introduced in this toolkit may be equally important to examining the competitiveness of a particular region. For example, export performance and production structure analysis may not be needed for a tourism region which have protected areas. Further, the use of only these tools may not be sufficient for the formulation of regional competitiveness agenda either. In this process, other complementary analyses and methods may be needed depending on the nature of each region.

Analyses conducted using this toolkit allows a deeper understanding of the baseline, i.e. current situation. To build a specific story however, an understanding of the past as well as projections into the future are as important as understanding today. To build a specific competitiveness story, it is important first to engage in analytical studies of the past. To the extent enabled by the data, one should engage in time-series analyses, archive reviews, chronological studies and impact assessments of past policies. It is necessary to reveal the past economic and social function of a region, and importance for the country and the world. Second, the current situation should be analysed to the deepest extent possible. In this context, comparative analyses, performance analyses and causality analyses may be undertaken. The toolkit presented in this report is designed to shed light on the baseline analyses even at basic level. Third, analyses should be undertaken to provide foresight into the future. A realistic vision shared by stakeholders, and scenarios and projections in line with such vision will be used to scientifically address what lies ahead in the future. A scientific synthesis of the past, present and future makes up the core of building a specific competitiveness story.

Conducting analyses alone is not sufficient to set the competitiveness agenda. A series of preconditions must be fulfilled to draw a roadmap based on priorities. As explained above, the first precondition is that such agenda be specific and based on analyses. Second, the agenda must be based on priorities. The underlying restriction of the science of economics is to maximize the utility out of the available resources. Accordingly, it is important to make optimum resource distribution decisions to achieve the goals set in the regional competitiveness agenda. On the other hand, setting priorities calls for taking into account the politico-economic conditions of a region in addition to making rational economic decisions. Third, the process of agenda making should be supported, monitored, evaluated and coordinated by an effective governance structure. All relevant stakeholders of the regional competitiveness agenda should be engaged in this process. Fourth, the competitiveness agenda should be in line with both the national agenda and priorities and those of other regions. Finally, care should be taken that the competitiveness agenda be designed in a structure conducive to updating, and not as a document to be left in the shelves. After all, it must be kept in mind that such agenda is a tool to enrich the dialogue between the private sector, public sector and civil society.

Results derived from the analyses described in this toolkit should be assessed and synthesized to build a story. The competitiveness agenda should indeed be addressed as a part of such a competitiveness story. The forthcoming story is important in fulfilling three separate functions. First, it must draw a larger picture of competitiveness of the region or province in question which enables various actors to see where they are located in this larger picture, and set their own agendas accordingly. The second function is communications. The existence of a story which can continuously be referred to by stakeholders can facilitate the discussion of right issues and priorities. To enable parties of varying interests and agendas to speak a common language, a correctly constructed competitiveness story is crucial. Finally, it should be kept in mind that a good story fulfils the function of orchestration. A well-constructed story may function effectively in locking various entities that may be using different and at times diverging or conflicting tools into common objectives.

While such a story as outlined here is rare in our country, the recent catch-phrase "2023 Goals" is considered an example of story-making. As introduced by the 61st Government of Turkey, such objectives as becoming a top 10 economy in the world, reaching 25,000 USD of per capita income, and 500 billion USD of exports are presented as "2023 Goals" and start to serve as a national story. The developments of every year passed should be assessed against this

story and the progress towards the goals should be marked. Further, various entities can assess new policies and projects on a yardstick of how they will contribute to achieving such goals. For the coordination of various national entities, such goals serve as a common language.

A competitiveness story should be built against the background of that region's economic and social functions. For a region to sustain, it should be important to the country and/or other countries for some reason. Such importance both defines the economic and social functions of the region and preserves integration with its external economic environments. The importance refers to what functions the region serves by its characteristics. While a region's functions are often interlinked, it is very well possible that they be independent. For example, Ankara is on one hand the administrative centre for Turkey because she is the capital city, she is on the other hand a junction in the transport network because she is right in the centre of the country. When building a regional competitiveness story, it is necessary also to examine the regions economic and social functions in a historical perspective. Such assessment will reveal the raison d'etre of that region. The competitiveness story of the region may sometimes involve a revitalization of former functions, or sometimes construction of new functions.

A regional competitiveness story should be cretaed in consideration of three factors: content, clarity and coherence. The crux of story making is to synthesize after comprehensive analyses, or in other words, not to omit making a whole after putting the pieces apart. The belief that the more chapters a baseline analysis has the more comprehensive it is may inhibit the construction of effective stories. The way to keeping the scope comprehensive as well as making an adequate synthesis involves both a prioritisation of relevant issues and organizing them under fewer headings. Second, care should be taken that the story be as clear as possible. This applies not only to the language used, but also to the nature of analyses, evidence presented and comparisons. Finally, the story should be a consistent and wholesome. To that end, findings from various tools should be interlinked, and much care should be devoted to synthesizing as has been to analysing. Conclusions arrived using very different methods should make up a coherent whole.

Simple narrative should be used in building a regional competitiveness story. To correctly implement the competitiveness story of a region, the elements of the story should be expressed tangibly and clearly. The audience and implementers of regional competitiveness stories are stakeholders of various segments in the region. Therefore, necessary measures should be taken to ensure that all stakeholders correctly understand and interpret the regional competitiveness story. In this context, the narrative style should be carefully selected to appeal to readers of all segments.[1] Particularly, technical terms and concepts rarely used by regional stakeholders should be avoided. This will keep the narrative simple and focused on the intended messages.

Building the regional competitiveness stories in a flexible structure involving alternative scenarios may facilitate the work of implementers. If lacking alternate routes to policy choices, the story making will likely appeal less to the stakeholders as well as make the implementation more difficult. In such case, the audience will have the choice of "to fully play or not to play" the role given to themselves in the story. Such a choice may lead to adverse consequences due to alternative costs. It is therefore important that different scenarios and policy alternatives be included so that stakeholders can play their roles in the best manner for themselves. Such a flexibility is needed to keep stakeholders adhered to the competitiveness story.

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[1] One should avoid sharp and exaggerated expressions in regional competitiveness stories. Such qualifiers as "extremely" or "considerably" should be used sparingly, unless supported by data or analyses. A frequent use of such expressions will inhibit an analytical presentation of the competitiveness story, resulting instead in a literary text. This makes a piece of art rather than a scientific and technical text out of the story, giving rise to a potential risk that the regional competitiveness story, for its artistic content, is built up in a manner not reflecting the characteristics of the region. Therefore, care should be taken to avoid using such style of expression in story making.
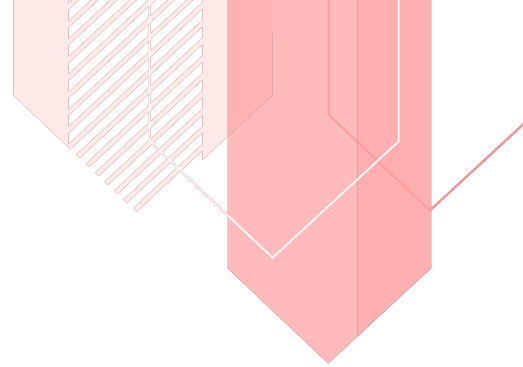
This synthesis should be made into a "story" which all stakeholders embrace, and transformed into a "competitiveness agenda" that lays down the steps leading to the projected future. While the tools used in making this synthesis are analytical tools based on scientific methods, the steps from synthesis to story and to an agenda embraced by all are more of an art rather than science.[2] Finally, any institution attempting to set a competitiveness agenda can very well perform its own art of story making as outlined here considering its specific circumstances and relying on all possibly scientific methods. We do hope that this toolkit will give momentum to the development of our regions by its contributions to the process of setting agendas and building stories.

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[2] For success story in Southeast Anatolia Region, please see UNDP and GAP Regional Development Administration (2007) Competitiveness Agenda for the GAP Region Report.