

DYNAMICS AND DRIVERS OF TURKISH REGIONAL
DEVELOPMENT: A CURATE'S EGG

by

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A thesis submitted to the
University of Birmingham
for the degree of
DOCTOR OF PHILOSOPHY

School of Geography and Environmental Sciences

University of Birmingham

November 2011

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ABSTRACT

Understanding of the economic processes shaping regional economies is in a constant state of change. These processes are important to understand for policy making as governments seek to improve the economic well-being of citizens. Existing empirical research in this field has focussed on regions in economically advanced and technologically innovative economies. As a consequence, the broader picture of the dynamics of regional development in less developed countries, particularly its social and political origins and the overall changes in regional inequality, have remained elusive and less clear. The purpose of this thesis has been to develop an understanding of the local and regional dynamics of economic development in the context of the transitioning and emerging economy of Turkey. The approach has been to unpack a series of local and regional development theories and, from the drivers identified, to develop an econometric model calibrated for the Turkish context using available and appropriate proxy measures. Document analysis supported by interviews with groups of policy makers has been intertwined with the results of the model. The results of the study explain that implications of the current local and regional economic development theories are a Curate's Egg – good in parts – because these theories are only partially relevant in the Turkish context.

Key words: Local and regional economic development, drivers of Turkish economy, theoretically informed empirical modelling

ACKNOWLEDGEMENTS

I would like to extend my sincere thanks to Professor Michael Taylor and Professor John Bryson who provided invaluable guidance throughout the period of this research. They are the sources of many of the key ideas presented in this work.

Many thanks to the staff and doctoral researchers at the School of Geography, Earth and Environmental Sciences, whose support played a part in making my life at the department less stressful.

I would also like to thank my parents for encouraging me to dream and work hard. Without their kind support, this experience would not have been at all possible.

Most of all, I would like to thank Zeze, my other half: she is my inspiration and the sparks that lighten my days. Thank you for your unconditional love and the sacrifices you have made to join me in this adventure to fulfil my dream.

Finally, I would like to thank God for continuing to bless me much more than I could have ever imagined.

LIST OF FIGURES

Figure 1.1: Turkey's geographical regions	6
Figure 1.2: Geographical position of Turkey	14
Figure 1.3: Structure of the thesis	23
Figure 2.1: Labour productivity gaps in Turkey, 2008	52
Figure 2.2: Unemployment rate in Turkey	56
Figure 2.3: Total imports, exports and trade balance, Bln US\$ by year	57
Figure 2.4: Industry value added, 2001-2009	59
Figure 2.5: Manufacturing value added, 2001-2009	60
Figure 2.6: 2010 Real GDP growth (%)	65
Figure 2.7: Annual average real GDP growth (%) forecast in OECD Countries 2011-2017	67
Figure 3.1: Evolution of economic theories-1	79
Figure 3.2: Evolution of economic theories-2	80
Figure 3.3: Evolution of economic theories-3	83
Figure 3.4: Diagram of channels for "Territory T"	94
Figure 3.5: The product cycle model (a) United States of America; (b) other advanced countries; (c) less developed countries	100
Figure 3.6: Porter's diamond model	132
Figure 4.1: Steps to undertake an empirical model	163
Figure 4.2: Summary of the general-to-specific approach	164
Figure 4.3: Matrix crossing types of sampling scheme by research approach	171
Figure 4.4: Relationship of samples	173
Figure 5.1: Proportion of employment of high-tech manufacturers in Turkey	194
Figure 5.2: Accessibility map of Turkey	200
Figure 5.3: Knowledge creation and accessibility to information in Turkey	201
Figure 5.4: Percentage of locally owned businesses (1-49 employees) in Turkey.	209
Figure 5.5: Provinces in the Priority Development Regions	216
Figure 5.6: Institutional Thickness and Institutional Support in Turkey based on Public Knowledge Creation	226
Figure 5.7: Population with tertiary education (% of 25-64 years old age)	230

Figure 5.8: The percentage of working population without degrees	232
Figure 5.9: Total net profit of production of Top 500 industrial enterprises in Turkey	235
Figure 5.10: Market Accessibility in Turkey	239
Figure 5.11: Total number of business establishments of each city in Turkey in terms of sectoral specialization (NACE 1.1), 2002	243
Figure 6.1: Process of interaction between the model and the interviews	250
Figure 6.2: Simple graph of a regression equation	255
Figure 6.3: Illustrations of (a) homoskedasticity and (b) heteroscedasticity	266
Figure 6.4: Unemployment dynamics, 2004-2008	270
Figure 6.5: Adana, Tunceli and Sirnak as outlier provinces	272
Figure 6.6: Distribution of the variables in log values, with outliers	285
Figure 6.7: Outlier provinces	286
Figure 7.1: RDAs that have been set up in Turkey	325
Figure 7.2: The provinces that are the headquarters of the selected RDAs	326

LIST OF TABLES

Table 1.1: Distribution and population of Turkish regions	7
Table 2.1: Evolution of Turkey's regional policy	35
Table 2.2: The historical order of Five Year Plans with their important characteristics	42
Table 2.3: Growth Centres (Provinces) in Turkey	45
Table 2.4: Turkey: Basic data	51
Table 2.5: Top industrial enterprises	53
Table 2.6: Export values in million US\$ (growth and shares)	58
Table 2.7: Budgetary allocations (million €) under the Turkey National Programs	73
Table 3.1: Growth Centres (Provinces) in Turkey	96
Table 3.2: Government incentives for technology oriented projects in Turkey ...	104
Table 3.3: Comparison of Çorum with different types of industrial districts	114
Table 3.4: Number of Specialized Industrial Zones	116
Table 3.5: From mass production to learning region	120
Table 3.6: Characteristics of two innovation models	125
Table 3.7: Top 10 Companies in the "Top 500 industrial enterprises" list in 2008	140
Table 3.8: The Dimensions of Theories of Local Economic Development	147
Table 4.1: Structure of the interview questions	176
Table 5.1: Growth drivers	186
Table 5.2: High-technology industries in the UK	189
Table 5.3: High Technology Manufactures	191
Table 5.4: High Technology Manufacturing in Turkey	193
Table 5.5: Number of Foreign Owned Companies in Turkey	207
Table 5.6: Number of local unit size group between 1-49 employees	208
Table 5.7: Provinces in the Priority Development Regions	207
Table 5.8: Example of Investment Credits	219
Table 5.9: Sectoral Breakdown of Investment Incentive Certificates (January- December)	221

Table 5.10: Pearson Correlation for the institutional thickness variable (81 observations)	223
Table 5.11: Component Matrix and Rotated Component Matrix of the variables ..	225
Table 5.12: Percentage of working population without a primary school degree ..	231
Table 5.13: The number of top 500 enterprises in the provinces of Turkey	234
Table 5.14: Total number of employment in manufacturing and construction sectors	238
Table 5.15: Total number of business establishments of each city in Turkey in terms of sectoral specialization (NACE 1.1)	242
Table 6.1: Growth drivers with their descriptions	258
Table 6.2: Summary table for the addition of an irrelevant variable	262
Table 6.3: Summary table for the omission of a relevant variable	264
Table 6.4: Correlation coefficients of the dependent variables between 2004 and 2008	270
Table 6.5: Unemployment statistics, 2004-2008	271
Table 6.6: Model has been run without controlling the variables (81 observations)	273
Table 6.7: Index values of the extent and nature of local demand (MKTACC) variable	274
Table 6.8: The total net profit of production ($\times 10^6$ TL) in each province (TOTPOP)	276
Table 6.9: Model has been run by taking the standardized values of the independent variables (81 observations)	279
Table 6.10: Model has been run by taking the log values of the independent variables (81 observations)	281
Table 6.11: Breusch-Godfrey Serial Correlation LM Test result	283
Table 6.12: The general model of regional economic growth in Turkey 2004 to 2008 (excluding outlier values)	288
Table 6.13: Testing linear restrictions in the general model	290
Table 7.1: Summary table of Five Year Development Plans in Turkey	304
Table 7.2: Comparison table of theories and the policy documents	314
Table 7.3 The characteristics and the policy agenda of the CKA	328

Table 7.4: The value distribution of the variables in the CKA region	.....	330
Table 7.5: The characteristics and the policy agenda of the MEVKA	.....	334
Table 7.6: The value distribution of the variables in the MEVKA region	.....	335
Table 7.7: The characteristics and the policy agenda of the OKA	.....	339
Table 7.8: SWOT analysis of the OKA	.....	340
Table 7.9: The value distribution of the variables in the OKA region	.....	341
Table 7.10: The characteristics and the policy agenda of the DAKA	.....	344
Table 7.11: The value distribution of the variables in the DAKA region	.....	345
Table 7.12: Population – actual and proportion: Turkey 1980-2050	.....	350

TABLE OF CONTENTS

Abstract	i
Acknowledgement	ii
List of Figures	iii
List of Tables	v
Table of Contents	viii
1 UNDERSTANDING THE RISE OF EMERGING ECONOMIES	1
1.1 Introduction	1
1.2 The Problem	4
1.3 Local and Regional Economic Development in Turkey: Policy and Practices	6
1.3.1 The pre-1980 Period	8
1.3.2 The post 1980 Period	13
1.4 Aims and Objectives	20
1.5 Structure of the Thesis	22
2 ECONOMIC DEVELOPMENT IN TURKEY	27
2.1 Introduction	27
2.2 Transformation in Regional Policy	29
2.2.1 Traditional Policies (1945-1970)	30
2.2.2 Transition Period (1970-1990)	32
2.2.3 New Regionalism Paradigm (1990-present)	34
2.3 Turkey's Protean Regional Policy and National Development Plans	36
2.3.1 Before the Planned Development Period (Until 1963)	37
2.3.2 Planned Periods and Five Year Development Plans	39
2.3.2.1 <i>Growth Poles</i>	43
2.3.2.2 <i>Towards Flexible Production</i>	46
2.3.2.3 <i>From Industrial Zones to Clustering</i>	47
2.4 The Structure of the Turkish Economy	50
2.4.1 The Economy during the Last Decade (2000 and onwards)	54
2.4.2 Europeanization of Turkey	61
2.5 Regional Development Experience in Turkey	68
2.5.1 Before the EU Candidacy	68
2.5.2 Under the EU Arrangements	71
2.6 Conclusion	75
3 THEORIZING REGIONAL ECONOMIC DEVELOPMENT	77
3.1 Introduction	77
3.2 Understanding Regional Development	78
3.3 Theorizing Process	85
3.3.1 Growth Poles	91
3.3.2 The Product Cycle	97
3.3.3 Flexible Production and Specialization	105

3.3.4 Learning Regions and Innovative Milieu	117
3.3.4.1 <i>Learning Region</i>	118
3.3.4.2 <i>Innovative Milieu</i>	127
3.3.5 Competitive Advantage	130
3.3.6 Enterprise Segmentation	135
3.3.7 The Creative Class	141
3.4 Conclusion	146
 4 METHODOLOGY	 151
4.1 Introduction	151
4.2 The Problem of Theory in Economic Development	153
4.3 Motivation and Research Design: Theoretically Informed Empirical Modelling	155
4.3.1 Design	156
4.4 Quantitative Research	160
4.4.1 Empirical Modelling and the Need for Using the ‘General to Specific Approach’	162
4.5 Qualitative Research	165
4.5.1 Document Analysis	167
4.5.2 Focus Group Interviews	168
4.5.2.1 <i>Sampling Design for the Focus Group</i>	170
4.5.2.2 <i>Sample Size and the Questionnaires</i>	174
4.6 Ethical Issues	177
4.7 Foreseen Problems during the Research Design	179
4.7.1 Problems of the Quantitative Analysis	179
4.7.2 Problems of the Qualitative Analysis	181
4.8 Conclusion	182
 5 EXPLORING THE DRIVERS OF REGIONAL GROWTH: SELECTION OF VARIABLES	 184
5.1 Introduction	184
5.2 Drivers of Regional Economic Growth	185
5.2.1 Technological Leadership at the Enterprise Level	187
5.2.2 Knowledge Creation and Access to Information	195
5.2.3 Local Integration of Small Firms	205
5.2.4 Institutional Capacity and Institutional Thickness	210
5.2.4.1 <i>Theorising Process</i>	212
5.2.4.2 <i>Methodology</i>	215
<i>Public Investment</i>	216
<i>Municipality Expenditure</i>	217
<i>Number of Public Buildings</i>	217
<i>Public Knowledge Creation</i>	218
<i>Amount of Investment Incentives</i>	219
<i>Collaborative Knowledge Creation</i>	220
<i>SMEs Incentive Investment Certificates</i>	222
<i>Non Governmental Organizations</i>	222

5.2.4.3 <i>Correlation of the Variables</i>	223
5.2.5 Local Human Base	228
5.2.6 Power of Large Corporations	233
5.2.7 Market Accessibility	236
5.2.8 Local Sectoral Specialization	240
5.3 Conclusion	244
 6 MODEL AND EMPIRICAL FINDINGS FROM ESTIMATING REGRESSION MODELS ON DRIVERS OF REGIONAL GROWTH	 247
6.1 Introduction	247
6.1.1 The Importance of Modelling and Some Preliminary Thoughts	248
6.2 Econometric Models	251
6.2.1 The Model	254
6.3 Some Problems with Estimation	260
6.3.1 Specification Errors	261
6.3.1.1 <i>Including an irrelevant variable</i>	262
6.3.1.2 <i>Omitting a relevant variable</i>	263
6.3.1.3 <i>Nonlinearities in the model's functional form</i>	265
6.3.2 The Variance of the Error Term is not Constant	266
6.4 Empirical Findings	267
6.4.1 Estimating Regression Model for Turkey	268
6.4.2 Geography and the Outlier Values	284
6.5 Discussion and Conclusion	292
 7 THE SOCIAL CONSTRUCTION OF REALITY IN THE TURKISH POLICY	 297
7.1 Introduction	297
7.2 Policy Practises in Turkey	301
7.2.1 RDAs in Turkey	322
7.2.1.1 <i>Cukurova Development Agency (CKA)</i>	327
7.2.1.2 <i>Mevlana Development Agency (MEVKA)</i>	333
7.2.1.3 <i>Middle Black Sea Regional Development Agency (OKA)</i>	337
7.2.1.4 <i>Eastern Anatolia Development Agency (DAKA)</i>	343
7.2.2 Recent Policy Agenda	347
7.3 Conclusion	352
 8 CONCLUSION	 354
8.1 Introduction	354
8.2 Re-examination of the thesis – filling the research gaps	355
8.3 Contribution to the field of knowledge	358
8.4 Empirical results and policy directions	364
8.5 Reflection on the research process and the future research agenda	371
8.6 Summary and Conclusion	374

APPENDICES	.....	377
Appendix 1: Ordinary Least Squares	.....	377
REFERENCES	.....	384

AUTHOR’S PUBLICATIONS

**Understanding Local Industrial Growth: From Theories to Pragmatic
Local Policies, Economic Policy Research Foundation of Turkey, October 2011
(Michael Taylor and Aksel Ersoy)**

**Modelling Local and Regional Economic Development in Turkey: A Curate’s
Egg, Growth and Change, Accepted on 20.10.2011 (Aksel Ersoy and Michael
Taylor)**

**An Assessment of Institutional Thickness in the Turkish Context, African
Journal of Business Management, Accepted on 12.10.2011 (Aksel Ersoy)**

1 UNDERSTANDING THE RISE OF EMERGING ECONOMIES

1.1 Introduction

“There has been an enormous increase in inquiries from our customers regarding Turkey. Information requests about Turkey’s potential, market dynamics and investment environment from all over the world show that Turkey blinks strongly on global investor radars” (PwC Global CEO Dennis Nally, 2011¹).

A national economy consists of many local and regional economies. Each local and regional economy may have different drivers and economic structures. Understanding these drivers and structures is a fundamental challenge that confronts politicians, policy makers, academics, researchers and practitioners. However, this task is increasingly problematic in the face of rapid global economic change that has been further complicated by the impact of recession and volatility in fuel, energy and mineral costs. A number of studies have emphasized the dynamics of local and regional growth by identifying underlying internal and external forces and modelling their interactions (Brookfield, 1975; Lucas, 1988; Martin and Sunley, 1998; Plummer and Taylor, 2001a; 2001b; Coe *et al.*, 2004, Taylor and Ersoy, 2011). Real world situations that have been analysed empirically, however, have principally focussed on economically advanced and technologically innovative economies (Ersoy and Taylor,

¹ Celebrating its 30th year in Turkey, Dennis Nally, the global CEO of international auditing and consultancy services provider PricewaterhouseCoopers (PwC), delivered a speech on Turkey, 16.09.2011, Istanbul.

2011). As a result, there has been more research undertaken on developed countries rather than developing economies (see Jordaan, 2008a, 2008b for Mexican regions) and hence the broader picture of the dynamics of regional development remains elusive and less clear in less developed national economies. However, the regional dynamics in emerging economies are different to that of more developed economies. The analysis of emerging and developed economies reflect trends in a series of drivers, including the structural composition and the geographical profile of economic growth (financialization, de-industrialization and the off-shoring of manufacturing), the structure of demand (infrastructural investment-driven, export-oriented and credit driven consumer demand), national and international systems of regulation (financial liberalization, rules governing the mobility of capital and developmental state projects) and the specific geographical, social and institutional foundations of economic development (Dunford and Yeung, 2011). The reality is that economies change rapidly and some countries that have been considered less developed are growing fast in ways that have never been anticipated. These countries show great potential to develop and there is a need to understand the regional dimensions of this growth.

The purpose of this thesis is to explain the dynamics of Turkey's local and regional economies. *It seeks to identify and understand, empirically, the drivers of local and regional development in Turkey by developing a theoretically informed econometric analysis in the context of an emerging market economy.* The analysis is founded on seven theories of local and regional economic development. These are growth poles (Perroux, 1955), product cycles (Vernon, 1966), flexible specialization (Scott and

Storper, 1992), learning regions (Braczyk *et al.*, 1998; Lundvall, 1992; Maillat, 1996; Maskell *et al.*, 1998), competitive advantage (Porter, 1990); enterprise segmentation models (Taylor and Thrift, 1982, 1983; Dicken and Thrift, 1992); and the creative class (Florida, 2002). These theories have dominated discussions on local and regional economic development since the 1950s. From these theories, eight hypothesised drivers of regional growth are identified for the Turkish context which link technology, knowledge, businesses, institutions, human capital, corporations, markets and specialization. This thesis tests the seven theories and eight drivers to measure and assess their implementations but using a numeric model based approach. The reason why these theories and drivers are nested in a single numeric model is because the theoretical prepositions contained in the individual theoretical models are either ambiguous or lack clarity of expression. While each model provides little explanation individually, a numeric model offers an explanation to the possible form of the functional relationship between eight drivers and local economic performance. This shifts the focus away from case studies to on quantitative based approaches that could influence policy development and building. This is an important step for policy makers because quantitative methods generate quick and easy access to baseline information which is crucial in the decision making process. Not only has this form of analysis not been undertaken in Turkey, but the theories themselves have had a major impact on Turkish regional planning. The following sections define the challenges for this study, briefly explain Turkish policy development and set out the objectives. This chapter concludes with an account of the structure of this thesis.

1.2 The Problem

Turkey, with a population of more than 77 million and a 1.2% annual population growth rate in 2011, has a very dynamic economy. It is a complex mix of modern industry and commerce along with a traditional agriculture sector. The state is an owner of basic industry, banking, transport, and communication, but there is also a strong and rapidly growing private sector. Textiles and clothing account for one-third of industrial employment and they are very competitive in international markets. Productivity is increasing within the national economy and the style of Turkey's economic growth has been compared to China and India (Rodrik, 2010). At the same time, Turkey is positioning itself and preparing for entry into the European Union. To meet Turkey's national economic goals it is, therefore, important that regional economic policies help to support, harness and enhance the economic growth potential of its constituent regional economies (Taylor and Ersoy, 2011). Those economies, at the provincial level, have a range of different starting points, from the most developed in the largest urban centres to the more rural and regional areas.

To adapt to the process of change, regional development in Turkey has undergone major transformations. During this transformation, policies have been formulated to enhance regional economic development. Although there have been local influences, the majority of policy interventions have been brought in and adopted from policies and ideas formulated in developed economies (Taylor and Ersoy, 2011). Moreover, although recent reforms, particularly fiscal discipline, the introduction of inflation targeting and the overhaul of financial sector regulations, together with political

stability and the opening of EU accession negotiations has improved Turkey's confidence in the ability to manage the economy; the economy is still a work in progress. Inflation is not wholly defeated and today unemployment is still in double figures. This raises a number of concerns about policies concerning local and regional economic development. For instance, Turkey has pursued financial liberalization policies since 1980. However, the redistribution of the resources has encouraged the rural-urban disparity and reflected on inequalities in salaries and migration from east to west (Önder and Özyıldırım, 2010). This study is situated within broader global debates on understanding local and regional economic development in emerging economies and the contribution this makes to economic growth in Turkey, the impact of theories of local and regional development, and the importance of the relationship between empirical analysis and policy practices in Turkey.

The study, therefore, has to examine the characteristics of local and regional economic development in Turkey. This involves (1) an evaluation of the scope, attributes and theories of local and regional development; (2) an analysis of current economic growth in Turkey; (3) an identification of proxy measures in the Turkish economy; (4) an estimation of an econometric model; and (5) an exploration of the role of the state and regional government policies. The next section explores some aspects of the evolution of Turkey's economy.

1.3 Local and Regional Economic Development in Turkey: Policy and Practices

Turkey is formally composed of 81 provinces used as administrative units. There are seven regions (Marmara region, Aegean region, Black Sea region, Central Anatolia region, Mediterranean region, Eastern Anatolia region and Southeastern Anatolia region) which have been defined according to geographical characteristics and economic performances of their provinces (Figure 1.1 and Table 1.1). For example, the provinces located in the eastern parts of Turkey are known to be lagging behind in economic and social terms. Studies point out that the geographical location of provinces influences the level of income and education in the favour of the western regions (Celebioglu and Dall'erba, 2009; Gezici and Hewings, 2004). Similarly they show that inequalities in salaries and migration from east to west increase the rate of urbanization (Elveren and Galbraith, 2008; Kirdar and Saracoglu, 2007) which is one of the main problems of Turkey's seven regions.



Figure 1.1: Turkey's Geographical Regions

	Population (x1000)	Urbanization Rate (%)	Population Growth (%)	Density (per/km2)
Marmara	1737	79	27	241
Aegean	894	61	16	10
Central Anatolia	1161	69	16	63
Mediterranean	871	59	21	98
Black Sea	844	49	4	73
Southeastern Anatolia	661	62	25	88
Eastern Anatolia	614	53	14	42
Turkey	6780	65	18	88

Table 1.1: Distribution and population of Turkish regions

Throughout the years, the policies and practices of Turkish local and regional economic development have changed to balance the divergence between the western and eastern regions of Turkey. However, Turkish regional imbalances have been the subject of Turkish reality for many years. For instance, Ertugal (2005) explained that redistribution policies did not necessarily achieve the aim of increasing cohesion across Turkish regions. Gezici and Hewings (2004) point out the importance of functional regions of Turkey and conclude that the regions that receive most of the funds did not grow faster than the more developed regions of the West. To explore the dynamics and structures of Turkish regions, it is crucial to understand the changes and characteristics of the policies and practices of Turkish local and regional economic development.

The Turkish economy has experienced two different stages since the foundation of the Republic in 1923. The industrialization process of the pre-1980s period was based on import-substitution policies. After the 1980s, policies were developed to renew economic growth on the basis of an export oriented strategy. With the combination of an export push and foreign capital inflows, new reforms have been conducted in many areas. The whole development process can be categorized into two different periods: *the pre-1980 period* and *post 1980 period*. These periods are now explored in turn.

1.3.1 The pre-1980 Period

The emergence of the Republic of Turkey came from the country's disengagement from the shackles of the Ottoman Empire and the creation of a new political, social and economic unit. Therefore, the Turkish government adopted policies to promote the political, social and economic transformation of society. The central principle underlying Turkey's economic development efforts after the proclamation of the Republic (1923) was founded on a mixed economy based on the combination of democratic and secular policy. Although the state was thought to play a leadership role in the decision making mechanism, it receded into the background as private enterprises developed and became the dominant economic actors. Therefore the post-1923 republican era had been a period in which the respective weights of "public" and "private" changed drastically. To consider the current national and regional economic development policies, it is important to understand how previous economic policies and priorities have changed. These changes reflect the shift from a heavily regulated

and inward oriented economy to a more liberal economy increasingly exposed to the discipline of the world markets.

The economic restructuring of Turkey began after the earth shaking effects of the World War I and the Great Depression in 1929. Unfortunately, state involvement in economic activities was rather limited due to post-war agreements and the socio cultural structure of Turkey. For example, the Turkish government adopted some policies in the Izmir Economic Congress (1923) such as supporting and promoting private enterprises in cases where private enterprises were not powerful enough to develop by themselves. Also some economy related provisions in the Lausanne Treaty (1924) considerably restricted the area in which the government could operate. In addition to these agreements, it was stated that the weakness of Turkish entrepreneurial resources during the early days of Republic was the result of social and cultural conditions inherited from the period of the Ottoman regime (Alexander, 1960). At this time, the majority of finance and existing small industries were in the hands of Greeks and Armenians. The decline of foreign minorities² which occurred in the 1920s meant that the country was deprived of its main sources of entrepreneurial skills and capital. Turkey has a peasant dominated population and the Turks of the Ottoman Empire were contemptuous of business and of those who engaged in it; business was thus controlled by foreign ethnic and religious minorities (Kerwin, 1951). Although there were attempts to promote private enterprises such as the law for ‘The Encouragement of Industry’ (*Teşvik-i Sanayi*) in 1927, private enterprises were not very successful because of the lack of necessary technological skills and

² There was an exchange of populations with Greece in the 1920s,

capital. Therefore, government was the leading actor in the production of goods and services. The state emerged as the principle entrepreneur and a number of key State Economic Enterprises (*Kamu İktisadi Teşebbüsleri*) were founded. Private enterprise began to develop alongside state industry and a process of private capital accumulation started to manifest itself through contracts with the state (Öniş, 1996). During this period (1933-45), the Turkish economy was heavily controlled by the state and this was the beginning of a new Turkish policy which was based on ‘etatism’ (*devletçilik*). Etatism was adopted as an economic policy following the Great Depression of 1929. The Turkish state had the power to intervene for economic progress and the creation of a national economy through railway building, banking and state-led industrial investments. Beside the Şakir Kesebir Plan, the İsmet İnönü Program, the 1933- 1937 and the 1938-1942 Industrial Plans; the Vocational Education Plans and the Şevket Süreyya Plan were the main plans of this period. Also this was the period in which the capital levy (*Varlık Vergisi*) was introduced in 1942 on minority groups and affected many of their members. This levy was an instrument in the further Turkification of economic life by enabling Turks to buy up the businesses and property of members of minority groups at low prices (Issawi, 1955).

Between the end of World War II and the 1960s, some attempts were made to encourage liberalization. With the transition of parliamentary democracy in 1950, new economic ideas such as trade liberalization, agriculture and infrastructure development and the encouragement of foreign capital emerged. Privatization appeared as an item for the first time on the policy agenda. This ideological shift could be explained by the alterations in party representations of Parliament at that

time. Between 1940 and 1954, the proportion of the military declined from 18 per cent of the total number of members of Parliament to 5 per cent, while other professions such as engineers, lawyers, doctors increased from 31 per cent to 55 per cent³. The economic role of the state was transformed from a leadership position to a complementary or supportive role marked by a progressive shift of focus to the subsidized provision of intermediary goods and key infrastructure activities (Öniş, 1996). However, the uncontrolled expansion in the Turkish economy created Turkey's first major macroeconomic crisis during the post war period. The Turkish Military intervened in this situation in the early 1960s by introducing a 20-year-programme called Import Substitutions Industrialization (ISI). That was the end of the new liberal economy at that time. The division of labour between the public and private sector, on the other hand, still continued under ISI and during that period Turkey was able to achieve higher rates of economic growth. This period was also very important in terms of planning. In 1963 the Turkish government decided to develop regional economic policy through the creation of five year development plans (FYDP) created by the State Planning Organization (SPO) which was established in 1961.

In 1964, the Association Agreement (Ankara Agreement) was negotiated and approved between Turkey and the European Union (EU – formerly the European Community) and this was supplemented and specified by an Additional Protocol in 1972⁴. However, the implementation of the Ankara Agreement did not commence

³ From the biographical album of the members of the Grand National Assembly, TBMM, Ankara, 1940 and 1954.

⁴ For the text of the Ankara Agreement see Official Journal of the EC no. 217, 29 December 1964; for the text of the Additional Protocol, *ibid*, no. 293, 27 December 1972. Whereas the Ankara Agreement sets the framework and guiding principles of the relations, the Additional Protocol regulates the details of the establishments of the customs union.

until the early 1990s⁵. The EU had abolished all customs duties and non-tariff barriers (NTBs) for Turkish manufactures by 1973. The only important exception was in trade in textiles and clothing which later came under the EC textile policy in the framework of the Multi-Fiber Agreement (Kramer, 1996). That is the reason why textile and clothing industries developed much later in Turkey.

By the time the oil shock and the Cyprus crisis hit Turkey in the 1970s, a new stabilization program had been introduced under the auspices of the IMF and the World Bank abandoned ISI. The EC contributed to the opening of the Turkish economy to European competition. Neither the EU nor Turkey undertook strong efforts to make the Ankara Agreement and the Additional Protocol succeed⁶. When the EC did not respond positively to Turkey's demands, the Turkish government had to propose a five year moratorium on the association to reassess the whole undertaking. It was realized that the gradual opening of the Turkish economy to European competition ran contrary to the established policy of planned national economic development by way of import substitution (Kramer, 1996). When the EC started to grant some trade concessions to other countries, especially in the framework of its "global Mediterranean policy" established after 1975, Turkey saw itself deprived of the expected benefits from the EC's trade liberalization measures of

⁵ For the Turkish review of the issue, see Mukerrem Hic, "The Evolution of Turkish-EEC Relations and Prospects of an Early Application for Membership: A general Survey", in *Dis Politika/Foreign Policy* 9 nos. 1-2 (1981): 49-80.

⁶ For the detailed information, see Heinz Kramer, "Turkey and the European Union: A Multi-Dimensional Relationship With Hazy Perspectives" in Mastny V. and Nation, R.C., eds., *Turkey Between East and West: New Challenges for a rising Regional Power*, Westview Press.

1973⁷. So Turkey started to fulfil the requirements of its own obligations for trade liberalization.

1.3.2 The post-1980 Period

After the 1980s, government policies have been intended to renew economic growth on the basis of an export oriented strategy. With the combination of an export push and foreign capital inflows, new reforms were implemented in many areas such as trade policy. The new economic policy, therefore, shifted from a heavily regulated and controlled mixed economy to the neoliberal idea of a “free market economy”. In addition, there was a shift of public investment from manufacturing to infrastructural activities such as transport, communications and energy due to the complementary role of private sector activities in the post 1980 period. These changes met with the approval by the EC and this has resulted in Turkey’s application for membership to the EC on 14 April 1987⁸. To improve EC-Turkey relations, the Commission presented a comprehensive package of measures in the fields of trade relations, economic and industrial cooperation and financial aid⁹ which were not implemented until November 1992. The new changes were reflected in regional plans that identified potential sectors for the acceleration of development and the effective use of local resources (see DPT, 1985).

⁷ A short introduction of EC-Turkey is given by Heinz Andresen, “The European Communities’ Mediterranean Policy”, in Okyar and Aktan, *Economic Relations*, pp. 60-71.

⁸ For more details, see Eralp, “Turkey and the European Community in Changing Post-War International System”, *Turkey and Europe*, pp. 31-36.

⁹ For details, see Commission of the European Community, *Commission Communication to the Council Concerning Relations with Turkey and a Proposal for a Council Decision about a Fourth Financial Protocol*, Brussels, 12 June 1990 [SEC (90) 1017 final]

While the 1980s were associated with the establishment of the neoliberal idea, the 1990s were defined in terms of ups and downs in the Turkish economic history. First of all, the Gulf crisis damaged Turkey's economic relations with Iraq. In 1994, Turkey was hit with another crisis because of the mismanagement of a program to reduce interest rates. On the other hand, the geographical position of Turkey (see Figure 1.2) has become more important especially after the second Gulf War (1990-1991) and the demise of the Soviet Union (December, 1991). The emergence of five independent Turkic Republics (Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan and Azerbaijan) let Turkey interact with these Turkic states in the 1990s. Common linguistic, cultural ties as well as historical memory and myths relating to the origin of the Turkish people provided a strong incentive for the Turkish state and public to cultivate relations with the new Turkic Republics. Turkey rapidly established diplomatic relations and increased economic and cultural cooperation in the Caucasus and Central Asia (Onder, 2008).



Figure 1.2: Geographical position of Turkey

Large oil reserves in the Caspian Sea and the idea of transporting Caspian oil to Turkey and then to Europe increased Turkey's strategic and political importance in the world. This was acknowledged by a declaration of the European Council, at the biannual summit meeting of the EC's heads of state and government, at its Lisbon Meeting in June 1992, which stated that "the Turkish role in the present European political situation is of the greatest importance"¹⁰. Therefore the Turkish government and the EC agreed to create an intensive dialogue focusing on economic and industrial cooperation by 1995. Therefore the EU-Turkish customs union came into effect on 31st December 1995. This was an important step in Turkey's liberalization of foreign trade.

It is estimated that the bilateral liberalisation of industrial tariffs alone has benefited Turkey at around 1% of GDP and further liberalization towards third countries and adoption of free trade areas would create an additional 0.5-1 % GDP in the Turkish economy¹¹. Moreover, the customs union helped the transformation of Turkish industry by introducing stronger competition and accentuating the need for gaining a competitive edge, which has led to improvements in productivity¹². In this way, competition policy entered Turkey's agenda and the application of competition rules in Turkey became an important element for the country's trade integration with the EU. In the 6th Five Year Plan (1990-1994), EU regional policies started to emerge in Turkish regional policy agenda. In addition to EU-oriented trade liberalization, Turkey undertook multilateral tariff cuts and the removal of other trade barriers

¹⁰ "Conclusions of the Presidency" Agency Europe no. 5760, 28 June 1992, p.5.

¹¹ See G. Harrison, T. Rutherford and D. Tarr (1996). The Economic Implications for Turkey of a Customs Union with the European Union, Policy Research Working Paper, No. 1599, World Bank, Washington D.C.

¹² See M. Bryane, Turkish Policy Quarterly, Vol. 3 No:4, 2004.

following the conclusion of the GATT-Uruguay trade round¹³ and the creation of the WTO in 1994. As a result of the new Turkish structural adjustment, which was oriented away from import substitution to exportation, Turkey was able to promote an effective export policy for Turkish industry to open up to international markets.

However, Turkey's commitments under the WTO's agreements following the Uruguay trade round, as well as under the EU customs union agreement, restricted the Turkish state's ability to provide direct support to high-tech exports (Onder, 2008). Therefore, Turkish manufacturing exports consisted of relatively low technology goods. In declaring 1996 "the year of the SMEs", the Prime Minister aimed at exploiting their export potential. Industrial policy was being modified to subsidize the R&D and marketing activities of SMEs and Eximbank was instructed to allocate a greater share of credits to these firms. This issue was explained with the new policy towards SMEs in the National Plan¹⁴ as SMEs are adaptable to economic change and innovations and they have a high capacity to create employment. Although the Plan does not provide a comprehensive framework to support SMEs, it can be reasonably claimed that the issue will be on the agenda of the Turkish government because World Trade Organization (WTO) regulations forbid all industrial support policies with the exception of those for the promotion of SMEs, local development and R&D activities. Therefore, support for the SME sector has become one of the main policy tools available to the Turkish government to support its industries. After the mid-1990s, Turkey started to develop relations with non-EU and Asian countries. Russia was especially important, due to Turkey's increased gas imports. Asia was crucial, due to

¹³ For more information, see the website of WTO and GATT Uruguay round.

¹⁴ the 7th Five Year Plan (1996-2000)

cheap Chinese textile exports to Asian countries. However, the Asian and Russian crises after 1997 damaged many sectors such as construction and leather. The government introduced a 3 year macroeconomic program with the support of the IMF to encourage the formulation of a more stable environment for the economic growth at the end of 1999, but this program collapsed in February 2001.

Turkey had to implement another stabilization program under the auspices of the IMF and the World Bank to ‘empower the Turkish economy’. Therefore in April 2001, a new economic programme was introduced which contained new measures addressing exports, SMEs and the financial problems of companies. Improving innovation systems and encouraging new entrepreneurs became significant elements in the policy agenda. The “Industrial Policy for Turkey¹⁵” document was prepared in 2003 on the basis of the 8th Five Year Development Plan and the Government Programme as a medium term policy paper to develop a general framework for industrial policy. Innovations, investments and exports were highlighted and positioned in the new industrial policy. Technology Development Zones (Law No. 4691) came into force on July 6, 2001 to regulate the support of R&D activities as sources of innovations in production. Also, in 2004, the ‘cluster’ concept emerged in ‘SME Strategy and Action Plan’ for the first time in a policy document.

In addition to internal policies, two Accession Partnership Documents¹⁶ were accepted by the European Commission during this period. In the documents, the EU asked Turkey to develop the classification of the Nomenclature of Territorial Units for

¹⁵ Industrial Policy for Turkey (Towards EU Membership), TR Prime Ministry State Planning Institute, August 2003, http://ekutup.dtp.gov.tr/sanayi/tr_2003ab.pdf

¹⁶ The first one was accepted on March 8, 2001 and the second one was accepted on May 19, 2003.

Statistics (NUTS) as a basis for the introduction of Regional Development Agencies (RDAs). The EU also demanded that Turkey develop a national policy of economic and social cohesion aimed at reducing regional differences and adopt a legal framework that would facilitate the implementation of EU regional policy (European Commission, 2003a). A new division of regions at the NUTS-II level was accepted¹⁷ in 2006 as an example of the transformation of the governance structure and RDAs were defined as semi governmental agencies by the central government within the same legislation.

The Turkish economy grew considerably between 2002 and 2006 due to structural reforms in parallel with macroeconomic policies as well as the positive circumstances in international markets¹⁸. In addition, ongoing tight monetary and fiscal policies did not have any restrictive impact on economic growth. On the contrary, it contributed significantly to economic growth with the help of improving public balances and sustainable price stability¹⁹. Productivity increases were one of the remarkable indicators of structural change in the Turkish economy in the period of 2002-2006.

Productivity per worker in production increased since 2002 and became an important factor supporting GDP growth. In the first half of 2007, however, the uncertainty in domestic markets due to the general elections held in 2007 and increasing real interest rates in 2006 had negative effects on the economy²⁰. EU accession became

¹⁷ The legislation was passed on 25 January 2006, The Law on the Establishment, Coordination and the Tasks of Development Agencies, Laws No. 5449

¹⁸ According to DPT “Ekonomik ve Sosyal Gostergeler 1950-2006” (2008), FDI increased eight times in 2005 compared to the previous year and doubled in 2006 in comparison to 2005.

¹⁹ Turkish Pre-Accession Economic Programme, Macroeconomic Outlook, 2007

²⁰ Ibid.

increasingly problematic and the alternative of a “privileged partnership” idea was proposed by Nicolas Sarkozy, the President of France in 2007 which was also supported by German Chancellor Angela Merkel.

In the final Plan period²¹ (2007-2013), the focus is on the development of the regional and spatial development framework at the national level and regional development strategies and plans are anticipated to be prepared in cooperation with Regional Development Agencies (RDAs). Cluster policies, Organized Industrial Zones²², the concept of ‘attraction centres’²³, ‘competitiveness’²⁴ have emerged as the main policy ideas during this period.. At the core of these policies, reducing regional divergence has remained as the main concern. For instance, in 2009, the State Support for Investment Decree²⁵ stated that public investment would be provided according to regional and sectoral priorities. The following Medium Term Programs (MTPs) (2010-2012 MTP and 2011-2013 MTP) and the Strategic Document of Turkish Industry 2011-2014²⁶ have highlighted the importance of local dynamics and the endogenous potential of regions.

²¹ the 9th Five Year Plan (2007-2013)

²² The Organized Industrial Zones Place Selection Regulation was published in Official Gazette No: 26759 on 17.01.2008. The Regulation came into force on 28.06.1997 for the first time and revised on 21.05.2001 according to the OIZs Law 4562.

²³ Previous policy documents: 2007, 2008, 2009, 2010 State Planning Institute Institutional Financial Condition and Expectation Reports, the 60th Government Action Plan (10.01.2008), GAP Action Plan (2008-2012), 2008-2010 Preparation of Capital Investment Plan, 2007-2013 State Planning Institute Strategic Cohesion Framework, 2007-2009 Medium Term Program. For the detailed information see Serteser, S. (2008), *Bölgesel Gelişimde ‘Yeni’ Bir Politika Aracı: Cazibe Merkezleri, Değerlendirme Notu*, TEPAV.

²⁴ The Program was prepared by the State Planning Institute and published in Official Gazette No: 26920 on 25.06.2008.

²⁵ The State Support for Investment Decree was published in Official Gazette No: 15199 on 14.07.2009

²⁶ The Document was published by the Turkish Republic Ministry of Industry and Trade in December, 2010.

1.4 Aims and Objectives

This study seeks to understand, empirically, the drivers of local and regional development in Turkey. This is a difficult task. Processes such as globalization, Europeanization and regionalization facilitate and accelerate the implementation of externally developed policies in a country like Turkey (Taylor and Ersoy, 2011). This raises important questions in relation to adopting policies and practices of ‘successful’ nations and implementing those policies in a totally different national context. In fact, those policy ideas have only partial relevance in the developed country context (Plummer and Taylor, 2010) potentially making them even less relevant in developing economies. For instance, although Turkey is one of the fastest growing economies in the world, the nature of inequalities in salaries, the dependence on agriculture and weakness of industrial sector, the geographical differentiation in the education level, the migration flows from east to west, ethnic terrorism, populist and misguided government policies and the lack of private investment (see Celebioglu and Dall’erba, 2009) make Turkey a very distinctive and complex case to investigate and to apply those external policies and practices. What matters is the composition of growth and the distribution of income and wealth (Storper, 2011) that is not the case across Turkish regions. There is an urgent need, therefore, to better understand the relevance of current local and regional economic development theories and the drivers they identify in other emerging economies. In that respect, the objectives of this study are:

- to understand theories of local and regional development,
- to analyse current economic growth in Turkey,

- to identify proxy measures to empirically evaluate theories of local and regional development,
- to estimate an econometric model to test those proxy measures, and
- to evaluate the role of Turkish government and regional government policies.

To overcome the conceptual and analytical gaps between empiricism and theory, *theoretically informed empirical analysis* is developed in this study. This methodology contributes to the debate on the nature of local and regional economic development in Turkey by explicitly relating context, substance and process. The analysis conceptualizes a set of local and regional economic development theories and derives variables that link technology, knowledge, businesses, institutions, human capital, corporations, markets and specialization. These factors are identified by developing hypotheses which can be empirically investigated and that are informed by existing theory. They are then explored in an econometric model.

Modelling plays an important role in the empirical analysis. The modelling strategy is embedded in econometrics which can be defined as the application of statistical methods to economic data. An econometric analysis begins with the formulation of a mathematical model that is grounded in economic theory. The model is then specified in a form that can be tested with data using selected techniques. This study explores a set of local and regional development theories and proxy measures. It employs both quantitative and qualitative methods to empirically test a set of hypotheses derived from the local and regional economic development literature. Each theory of local and regional economic development is different, but each includes different permutations

and combinations of similar variables that are currently thought likely to enhance local economic capacities to create growth and enable regions to cope with change. The purpose of the modelling is to understand which of the theories or elements of those theories provide the fullest explanation of regional growth in Turkey.

1.5 Structure of the Thesis

This section introduces the guiding themes and heuristics of the thesis. Chapter 4 develops and explores the methodological implications of the thesis; *theoretically informed empirical analysis* is adapted as a methodology. This methodology involves both an econometric model and qualitative research. The econometric model is based on a selection of ‘proxy’ measures. Details of the model design and implementation are presented close to the analysis (Chapter 6) because they are closely inter-twined. Qualitative research was undertaken after the results of the model were established by using documentary analysis supported by focus group discussions (Chapter 7). The main reason why quantitative analysis is followed by qualitative analysis is that the internal logic of quantitative analysis in this research rests upon the validity of the qualitative analysis invoked in causal mechanism. This enables the quantitative analysis be open to revision and reassess in connection with the nature of the drivers of Turkish local and regional development being investigated.

After the introduction, the thesis developed the argument in two different ways (see Figure 1.3). Chapter 2 provides an analysis of regional development in Turkey. First, transformations in regional policy are discussed over three different periods:

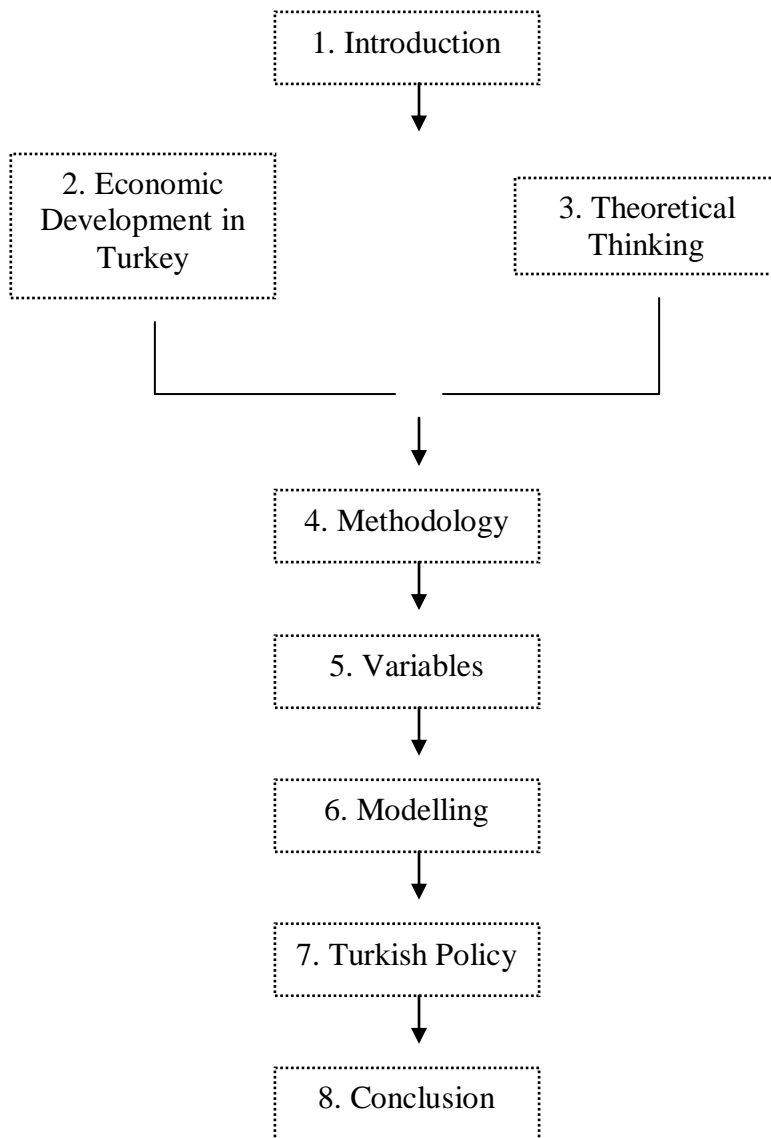


Figure 1.3 Structure of the thesis

traditional regional policies (1945-1970), transition period (1970-1990) and the new regionalism paradigm (1990 and onwards). Second, regional policies are discussed with reference to the Five Year Development Plans that have played a crucial role in Turkish economic development since 1963. Third, accession to the European Union is

explored and the Europeanization process of Turkey is examined. Finally, regional development in Turkey is examined by a discussion of current practices.

Chapter 3 is about the theoretical rationale for the thesis. It considers the theoretical context against which seven sets of theoretical propositions on the nature of the mechanisms that promote local economic performance are reviewed. These propositions are: growth poles (Perroux, 1955), product cycles (Vernon, 1966), flexible specialization (Scott and Storper, 1992), learning regions (Braczyk *et al.*, 1998; Lundvall, 1992; Maillat, 1996; Maskell *et al.*, 1998), competitive advantage (Porter, 1990); enterprise segmentation models (Taylor and Thrift, 1982, 1983; Dicken and Thrift, 1992); and the creative class (Florida, 2002). These theoretical models are explored in the chapter as they are (except the creative class model) the foundation for a paper by Plummer and Taylor (2001a; 2001b) or Taylor and Plummer (2003; 2010) that examined local economic development in Australia. The theories, however, are those that have dominated discussions on local economic development since the 1950s.

It is important to note that the arguments in Chapter 2 and 3 are not sequential. Therefore, these chapters should be read in parallel. Chapter 2 investigates the emergence of policies within Turkey and identifies the impact of theoretical thinking in policy circles. Chapter 3 explains theoretical thinking on the forces of local and regional economic development across national economies.

After explaining the methodology in Chapter 4, Chapter 5 begins another sequential process. To develop an analysis of whether those theoretically defined drivers steer the Turkish economy, it is crucial to develop models and test them. Therefore Chapter 5 is about linking Turkey's policy initiatives to theoretical thinking regarding the drivers of regional growth and change to test, ultimately, the relevance of existing theory to the reality of regional economic growth in Turkey. A set of proxy variables is identified to test the seven theories. The variables are identified to highlight the issues that are emphasized in each theory.

Chapter 6 develops an understanding of the local and regional dynamics of economic development in Turkey by constructing an econometric model. The chapter is in two parts. In the first part, the reasons for using such a model are discussed to help clarify and integrate the various theoretical concepts that have been discussed in Chapter 3 into the model building process. The chapter then explores the core concepts of the model that are used in the current study and relates them back to the seven theories. A set of econometric models is developed to explore the validity of a range of theoretical propositions in explaining the trajectories of regional economic change in Turkey. This chapter explains empirically, the drivers of local and regional development in Turkey and how they can be used to develop a theoretically informed econometric analysis in the context of an emerging market economy.

Chapter 7 follows the discussions in the previous chapter by reviewing policy documents and interviews with policy makers through focus groups to develop an understanding of the current policy agenda in Turkey. The chapter also explores how

policy approaches match the empirical modelling explored in Chapter 6. Therefore, this chapter shows whether there is a mismatch between the econometric analysis and what happens on the ground in current policy and planning activity.

Chapter 8 draws conclusions on regional economic development and regional growth in Turkey and reflects on the guiding heuristics outlined above. This chapter summarizes the main contributions of this study, and highlights the strengths and constraints of the key concepts and frameworks used. The second section of the chapter re-examines the aims and the objectives of the thesis, discusses the main contributions that it makes and how they add to the field of knowledge; the third section reflects on the study, highlighting the difficulties encountered during the course of the research and proposes avenues for future research, and the final section concludes the thesis.

This introduction has outlined the key issues which underpin this thesis. This thesis explores and unpacks the nature of the processes shaping regional economic growth in Turkey using econometric modelling. It seeks to understand the drivers of local and regional development in Turkey and how they can be used to develop a theoretically informed econometric analysis in the context of an emerging market economy. The details of the actual technicalities are explored in later stages of the thesis where the analysis is presented. The next chapter explains theoretical thinking on the forces of local and regional economic development across Turkey

2 ECONOMIC DEVELOPMENT IN TURKEY

2.1 Introduction

“I ask myself this: which European country grew at 11% at the start of this year? Which European country will be the second fastest growing economy in the world by 2017? Which country in Europe has more young people than any of the 27 countries of the European Union? Which country in Europe is our number one manufacturer of televisions and second only to China in the world in construction and in contracting? Tabii ki Türkiye [Of Course Turkey]”
(David Cameron, 2011²⁷).

Seven sets of theoretical models on the nature of the mechanisms that promote local economic performance are explained in the previous chapter. These theoretical models that were developed in advanced countries have been used in Turkey by influencing policies directly or indirectly. However, this understanding of the contemporary situation needs to be challenged because the regional dynamics in emerging economies are different to that of more developed economies. The analysis of emerging and developed economies reflect trends in a series of drivers, including the structural composition and the geographical profile of economic growth (financialization, de-industrialization and the off-shoring of manufacturing), the structure of demand (infrastructural investment-driven, export-oriented and credit driven consumer demand), national and international systems of regulation (financial

²⁷ Number 10 Press Release, ‘PM’s speech in Turkey, 27 July 2011.

liberalization, rules governing the mobility of capital and developmental state projects) and the specific geographical, social and institutional foundations of economic development (Dunford and Yeung, 2011). In that sense, it is important to get an overview of Turkish economic development in terms of the structural composition and the geographical profile, the structure of demand, regulation, and the specific characteristics of growth.

This chapter provides an analysis of regional development in Turkey. First, transformations in regional policy are discussed over three different periods: traditional regional policies (1945-1970), the transition period (1970-1990) and the new regionalism paradigm (1990 and onwards). Second, regional policies are discussed with reference to the Five Year Development Plans in Turkey. This section divides Turkey's evolving regional policy into two different stages, i.e. before and after the planned development period. The significance of this differentiation is to understand the shift of the structure of demand and the specific characteristic of growth over the years. Nine Regional Development Plans is briefly explained to highlight this shift in regional policy. Third, accession to the European Union is discussed and the Europeanization process of Turkey is explored to understand national and international systems of regulation. Finally, regional development in Turkey is examined by a discussion of current practices.

2.2 Transformation in Regional Policy

After the 1950s, regional development programs aimed at promoting and diffusing growth became a major concern of nations (Scott and Storper, 1990). Nations started to consider regional policy in their policy agendas to adapt the socio-economic transformation of societies. During this period, regional policies shifted towards understanding the new dynamics of the economy and this amounted to the emergence of new approaches in national and regional policy.

The conception of region in Turkey dates back to 1982 when article no. 126 in the 1982 Constitution decrees that “a central administrative institution comprising more than one province can be established”. Before that article, central administration was composed of central administrative institutions in Ankara and provincial administration. That article provided the legal basis for Turkish regional institutions. Sobaci (2009) explains that the concept of region and regional governance established for two reasons. First reason is to enhance administrative structure and increase security. The “General Inspection Institutions”, the “State of Emergency Regional Mayorship” and the “Regional Governorship” are given examples of regional governments for administrative and security purposes. Second is to reduce regional disparities. “Free Zones” and the “Southeastern Anatolian Project Institution” are some examples of regional governments for economic purposes.

However, the idea of region and regional government has not had a positive image in Turkey due to the unitary structure and the traditional centralist conception of Turkey

(Mengi, 2001). This situation applied to the Regional Development Agencies when they first attempted to establish as they were confronted with fierce political and bureaucratic resistance (Sobaci, 2009). Therefore, the existing regional structure has served primarily to implement centrally orchestrated policies. Nevertheless, the context for regional policy changed radically with the intensification of the relationship between Turkey and the EU, fostered by the possibility of full membership.

The emergence of new approaches in regional policy can be explained in three different stages in Turkey. The first period is called the period of traditional regional policies (1945-1970) in which the state had a direct influence on the development process. The welfare state was the dominant ideology at this time. The second period is called the transition period (1970-1990) in which the state started to lose power and the dynamics of endogenous development gained attention. The last period is called the new regional paradigm (1990 to present) in which the dynamics of global competitiveness, innovation and knowledge have been at the heart of the economy.

2.2.1 Traditional Policies (1945-1970)

After the Second World War, infrastructure provision was the main concern addressed by Turkish regional policy. Agricultural production started to lose its importance and problems in the traditional heavy industries led to increasing unemployment rates in the regions. This was followed by massive immigration flows to city centres. Increasing density in the centres was becoming a major problem and attempts at

solving this problem involved providing infrastructure which was mainly provided by the state. Since the nation state was the main actor in the development process, it was expected that it should manage the economy, be responsible for the inequalities and be in charge of the allocation of resources (Tekeli, 2004). Therefore, the policies in this period were mainly structured according to state interventions. In addition to balancing sectoral and income differentiation in national politics, regional inequalities were one of the priorities (Eraydin, 2002b).

To decrease inequalities between regions by increasing living standards and providing infrastructure and employment, areas with slow economic development, low income level and high unemployment were identified. The main policies that were formulated for those regions included (Bachtler and Yuill, 2001, p.8):

- 1) Financial incentives in the form of grants, loans, tax concessions, depreciation allowances, employment premiums, removal cost allowances, transport subsidies, labour-training aids and rent subsidies;
- 2) Infrastructure investment, especially in rural and sparsely populated areas;
- 3) The use of investment targets or other social obligations on the part of state-owned or state-controlled industries; and
- 4) The diversion of development from congested areas through development controls on manufacturing industry or the relocation of private and public sector offices.

During this period, Perroux's (1955) growth pole policy intervention was influential in the policy agenda of nation states and led to the channelling of investment to the areas that had the potential to grow or articulate growth. Therefore, selection of the investment areas was the main policy concern to decrease the financial cost, use resources efficiently and increase the profitability of investments (Eraydin, 2004). This limited the diversification of industrial policies during this period. Central government remained as the main decision maker in regional development.

2.2.2 Transition Period (1970-1990)

The economic crisis that was related to the two oil crises of the 1970s raised questions regarding the impact of state interventions. Centralist regional policies started to lose their importance and the nation state could no longer maintain their regional policies due to a lack of resources (Eraydin, 2002). Therefore, the policy focus shifted towards privatisation, deregulation and the liberalisation of markets. Regional policy moved progressively down the policy agenda, downgrading the policy goals of reducing disparities and promoting regional convergence (Bachtler and Yuill, 2001). Nevertheless, this period also encouraged regions that were competitive and had learning capacity. In this respect, a new regionalism based on endogenous development was encouraged during this period. So there was a move from the region to the local which had its own characteristics, accumulation and endogenous potential and this was implemented as a new policy (Eraydin, 2002).

In the 1980s, this transformation became more significant in the sense that the region was identified as a combination of local potential, networks and institutions. With this new transformation, regions started to be defined in accordance with various networks in the world (Eraydin, 2004). Since central government started to lose its power on regional and industrial policy, regional and local aspects became crucial in regional development. Therefore, economic development policies started to be considered at the local level by empowering the localities. This encouraged the participation of local governments in the decision making process and to develop their own solutions when they faced problems. That kind of orientation highlighted the importance of endogenous development, entrepreneurship and the SMEs.

SMEs were considered to be actors in local economic development and this new SMEs focus was partly driven by the impact of the 1970s recession on larger firms. While large firms were affected by the recession, 'new industrial centres' with more flexible production systems responded to the crisis quickly (Eraydin, 2004). This created the need to understand the dynamics of regional development in which endogenous development was encouraged and regional resources were utilized to facilitate development. This concept of endogenous development emphasised the importance of externalities in a region's knowledge base and agglomeration (Eraydin, 2004). Endogenous regional development considered regions as economic units that were undiscovered and places with available resources. Based on the characteristics of endogenous development, regional policies aimed to utilize the available resources to facilitate development. Alongside applying those policies, developing institutional capacity and gathering actors to develop strategies and policies for regional

development became important. Financial incentives and infrastructure provision were still important.

2.2.3 New Regionalism Paradigm (1990-present)

After the 1980s, globalization weakened the border concept of nations and regional competitiveness became crucial in economic development. However, the globalization process did not always bring success to regions. Some regions could not adapt to changing economic conditions and this resulted in huge regional inequalities. While some regions enjoyed the competitiveness of their region thanks to their regional potential, some regions started to lag behind the national economy. To be able to cope with the difficulties of regional competitiveness, new strategies and precautions were defined by the nations, the OECD and the EU. The competitiveness of economies is attributed to the ability to innovate, particularly within the context of environments that were considered to facilitate learning, interaction and networking between enterprisers. Technological and organisational changes altered the way in which companies organised their activities, both internally and with suppliers and customers (Bachtler and Yuill, 2001). The progressive removal of trade barriers and other constraints on the free movement of labour and capital lead to an accelerated internationalisation of economic activity through foreign investment, trade and inter firm links, such as acquisitions and mergers. This period highlighted local knowledge, institutional level and relationship between local units.

	1950-1970	1970-1990	1990+
Origin of regional growth	External demand	Endogenous growth	Endogenous growth
Dynamics of regional growth	Capital accumulation	Human capital	Technology, innovation
Comparative advantage	Location, scale economies,	Path dependency, agglomeration economies	Path dependency, networks
Regional development theories	Growth pole	New industrial spaces (clusters)	Innovative region, learning region
Governance	Centralist nation state	Decentralization of the power	Nation state as a part of globalisation, NGOs
Policy tools	Direct investments, infrastructure provision	Supply oriented investments, infrastructure provision	Supra nation networks, local network, national innovation systems

Table 2.1 Evolution of Turkey's regional policy (Source: Adopted after Tekeli, 2004)

The changes in Turkey's regional policy are summarized in Table 2.1. In terms of regional growth, endogenous development replaced external demand and it became part of regional growth after the 1970s. There was a shift in dynamics of regional growth from capital accumulation to human capital between the 1950s and the 1990s which was then dominated by technology and innovation. Path dependency and networks became important elements of Turkey's comparative advantage. The centralist nation State was no longer powerful in regional policy. Decentralization of

power became crucial. In terms of the policy tools that have been utilized in Turkey's regional policy, it was realized that direct investment was no longer valid for regional development. To increase the comparative advantage of the nation state, clusters and innovative regions emerged. To be able to access the wider parts of the global production chain, networks became crucial and they have been located at the heart of policy tools.

2.3 Turkey's Protean Regional Policy and National Development Plans

The economic structure of Turkey commenced with the Economic Congress in Izmir in 1923 before the Republic of Turkey was officially proclaimed on October 29, 1923. Through this Congress, the principles and objectives of the national economy were specified, having a major role in the socio-economic and political formation of the Republic of Turkey. The following years, the State took an active and permanent part in economic affairs. It took the initiative in vital segments of economic activity and promoted private enterprise (Okyar, 1965). However, private enterprises were not very successful mainly because of the lack of necessary technological skills and capital. To increase the Gross National Product (GNP) and the number of new employment opportunities, planning programs were formulated. To enhance administrative structure and reduce economic disparities across the nation, the conception of region and regional governance emerged in the national economy (Sobaci, 2009). With the intensification of the relationship between Turkey and the EU, regional policy situated at the heart of Turkish national and regional economy. The current part of the thesis explains Turkey's regional policy into two different

periods. The first period focuses on developments in Turkish regional policy before the planning period started. This period lasts until the establishment of the State Planning Institute (SPO) in 1963. The second period explains developments in regional policy by referring to national development plans that have been aimed to provide priorities and development goals during the planned period. There have been nine five year development plans since the establishment of the SPO. It is important to divide the description of Turkey's evolving regional policy into before and after the planned development period because after the planned period, regional planning emerged as a sub-planning category (Tekeli, 1997). Therefore, it remains crucial to understand the devolution of national planning and the emergence of regional policies.

2.3.1 Before the Planned Development Period (Until 1963)

The Republic of Turkey was officially proclaimed on 29th October, 1923 and the first planning interventions took place in the 1930s. Porokhovsky (1981) highlighted the timing of these planning practices as both the former Soviet Union and Turkey started to prepare the practices during the same period. This was explained by the Prime Minister İsmet İnönü (1998) as;

“... I have thought of the matter of the Plan, as one of the main aims of my trip to Russia in 1932. How do Russians find the financial sources for the plan, what results have they had from the plan up to now, what are their current circumstances, and considering our own needs and circumstances what results

and precautions can we assume? This was my main aim on my Russian trip. And in fact, I returned from Soviet Russia convinced that we needed to consider the plan as a serious precaution suited to our needs” (İnönü, 1998)

After his visit, a group of experts²⁸ came to Turkey to start the preparation of the plan. The First Five Year Industrial Plan (1934-1938) was prepared in 1932. However, rather than focusing on the Turkish economy in general, the Plan was restricted to decisions oriented towards industries in Turkey (Mihci, 2001). The Second Five Year Industrial Plan was more comprehensive and detailed. ‘Self-sufficiency’ and utilizing natural resources were the main principles and the focus was on developing heavy industries in Turkey (Gunce, 1967; Olcen, 1982; Kepenek and Yenturk, 2000). Different from the first Plan, the technical assistance and financial support were provided by England (Gunce, 1967). In 1936, eighteen million pound was borrowed from England to built Karabuk Iron and Steel Works to help start the Industrial Revolution of Turkey. However, the second plan was partially implemented and had to be abandoned at the beginning of the World War II. These plans provided guidance for the big scale development projects such as infrastructure, mining and manufacturing.

By the time the Democrat Party came into power in 1950, the recommended growth strategy was formulated around promoting private enterprise and developing agriculture. However, agricultural production could not meet the population increase and the cost of living increased by 150 per cent between 1953 and 1958 (Simpson,

²⁸ The group was led by Professor Alexander Orlov who was a Soviet economist.

1965). As a result, the government devalued the currency and agreed with the OEEC and the IMF to secure the new rate by running a balanced budget. However, inflation continued to increase and this culminated in a military coup in May 1960. From the planning perspective, Turkey's first planning experiences were not very successful mainly because they were not comprehensive (Aydemir, 1969; Mihci 2001). After the return of a civil parliament system, economic policy and planning started to be taken more seriously. Regional planning emerged as a sub-planning category (Tekeli, 1997). With the establishment of the State Planning Organisation (SPO) in 1960, the planning period of Turkey started.

2.3.2 Planned Periods and Five Year Development Plans

With the First FYDP, regional penetration of economic development and regional economic integration aimed to be encouraged through balanced urbanization. The policy idea of 'growth poles' (Perroux, 1950) was highly influential and regional development was formulated in accordance with the impact of large economic units. The 2nd FYDP focused on population problems that resulted from rapid urbanization. This was associated with an increase in the importance of provincial planning and *de facto* regional development through various investment activities. Promotion of developed infrastructure and service provision became effective in the sense that small initial changes were amplified over time to become substantial changes (Myrdal, 1957). The importance of effective development policies and institutions started to become relevant for economic development (Hirschman, 1958). Rapid urbanization and development started to create regional inequalities. This meant that

the development of less developed regions was included as an aim in the 3rd FYDP. ‘Priority Development Areas’ were defined to target investments into underdeveloped regions. The number of administrations (provinces) increased from 22 to 49 during the same period. The enlargement, however, restrained the efficient utilization of public resources (Dag, 1995). Therefore, locational choice of firms started to be considered as a long term competitive device to solve the problems of ‘polarization’ (Lloyd and Dicken, 1972). The same issue became more relevant in the 4th FYDP. The aim of the Plan was to mobilize resources towards regional problems through strengthening the relationships between sectors and regions. The Southeastern Development Project (GAP) was implemented as a spatial organization to support sectoral and provincial relationships in the region (GAP, 2011).

After the 1980s, there was a big shift in the regional planning approach in Turkey. This was reflected in the FYDPs. The Plans started to consider the ‘free market economy’ as a main driver in regional policy as well as a way of integration into the globalization process (Şenses, 1983; Ozturk and Aslanoglu, 1995; Arslan, 1997; Turel, 1997; Sezen, 1999; Tokgoz, 2001). In the 5th FYDP, economic liberalism and the power of markets (Friedman, 1962) started to emerge as regional economic thinking began to be influenced by Reagan and Thatcher. 16 functional regions were designed based on the urban settlement hierarchy to balance regional development via rationalizing resource management. With increasing external influences through the IMF, EU accession, the Customs Union between Turkey and the EU, spatial dimension of regional planning became more apparent in the 6th FYDP. Regional and sub-regional planning was practised and industrial zones were introduced to increase

the flexibility of the production system (Brusco, 1982; Piore and Sabel, 1984, 1989; Scott, 1988). The spatial dimension of the policies were emphasized in the 7th FYDP with the focus on SMEs. Sectoral specialization and integration of SMEs (Beccatini, 1991; Scott and Storper, 1992; Camagni, 1991) were highlighted in addition to an emerging concept, competitiveness (Porter, 1990). The competitiveness idea was more influential during the 8th FYDP as the cluster concept emerged²⁹ for the first time in a policy document. Regional plans were formulated for the integration of sectoral priorities and their spatial dimensions. The ‘local’ started to become more focused. Local entrepreneurship as well as mobilization of local resources was considered under ‘strategic regional planning’. Within the harmonization of the EU regional policies, technology and human capital were given more attention due to their increasing importance in the local economy (Maillat, 1995, 1996; Morgan, 1996; Maskell *et al.*, 1998). Finally, the 9th FYDP aimed at spatial polarization of public investment and service provision; developing and increasing institutional capacity; and endogenous development. ‘Attraction centres’ were built and leading sectors were identified to increase regional productivity and enhance competitiveness and employment. New concepts such as learning regions, innovation systems (Lundvall, 1992) and knowledge creation (Florida, 2002) emerged as ways of enhancing national and regional development.

Table 2.2 summarizes the Five Years Development Plans in Turkey in terms of aims, objectives, evidence of impact and current resources of regional economic thinking. The transformation of the Plans shows how policy ideas have been brought into or

²⁹ SME Strategy and Action Plan, 2004

The 1 st Five Year Plan	1963 - 1967	Providing and improving infrastructures
The 2 nd Five Year Plan	1968 - 1972	Introduction of “Development Poles”
The 3 rd Five Year Plan	1973 - 1978	Introduction of “Priority Development Areas”
The 4 th Five Year Plan	1979 - 1983	Activating local resources and potential
The 5 th Five Year Plan	1985 - 1989	Introduction of “Functional Regions”
The 6 th Five Year Plan	1990 - 1994	Effects of EU Regional Policies in Regional Planning
The 7 th Five Year Plan	1996 - 2000	The Rise of Sectoral Preferences and Spatial Analysis
The 8 th Five Year Plan	2001 - 2005	Competitiveness, Productivity of the Industry
The 9 th Five Year Plan	2007 - 2013	Economically More Stable “Information Society”

Table 2.2: The historical order of Five Year Plans with their important characteristics

appeared in Turkey to shape regional policy (Table 2.2). It emphasizes that this sort of acquisition of thinking has been translated into the policy framework in Turkey. In other words, Turkey has been developing policies that have been devised using ideas on how developed regional economies function. Especially, after the 4th FYDP, the Plans have tried to emulate regional economic thinking that has become significant. The details of the each Plan and how they accommodated the legacies of the preceding FYDPs are explained in Chapter 7. The important issue here is to understand the relevancy of Turkish regional policies. Because as it has been mentioned before, the existing regional structure has served primarily to implement centrally orchestrated policies. This raises some questions regarding the role of localities such as: Are there local policy influences? Are these policies all translations? Have the local policy influences been marginalised? Or do local policy influences not exist or do they exist but have been overwritten by foreign ideas or external expectations? The following section categorizes the main policy influences that have been observed in the FYDPs: growth pole, flexible production and clusters.

2.3.2.1 Growth Poles

One of the main questions that many policy makers ask in regional development in both developed and developing economies is whether it is appropriate to support regional centres as a way to develop lagging hinterland regions. This is a very important question to understand because large sums of money are devoted to those regions without knowing whether the effects are positive or negative (Tervo, 2009). The strategy and theory of growth poles has been used in Turkish policy to facilitate

the cumulative nature of the growth process and develop lagging regions in the country. When the “planned development period” of Turkey started with the 1st FYDP (1963-1967), the policy was used to support large economic units in the country. Following the first one, the 2nd FYDP (1968-1972) also aimed to provide and improve infrastructure for the regions via allocation of income and public services, as well as encouraging investments in less developed regions³⁰.

Influenced by Perroux (1955), who viewed growth within a grouping of industries around a central core of other industries, both Plans aimed at creating ‘growth poles’ in various regions to develop firms and industries in these regions. Infrastructure and investments were concentrated on those regions as an attempt to encourage economic activities and thereby raise levels of welfare within (Parr, 1999). However, this sort of thinking should be practised carefully to facilitate economic development. Serteser (2011) raises some concerns about the policy idea of growth including, first, the ideology of this paradigm. Since underdevelopment results from a lack of resources (both human and capital), the state is expected to provide those resources to encourage development in underdeveloped regions. However, this raises some problems about the sustainability of the economic development. The second concern is the appropriateness of the policy idea in these regions. If a majority of the underdeveloped regions are dependent on agricultural production, they are expected to have policies on agricultural modernization rather than implementing big scale industrial projects.

³⁰ For the detailed information, see “Bolgesel Gelisme Ozel Ihtisas Komisyonu Raporu”, Sekizinci Bes Yillik Kalkinma Planı, DPT, Nisan 2000.

Although the policy idea of growth poles has been dismantled partly because of its complexity and the changing role of the state after 1980s, some ideas have alluded to

Region	Provinces
East Anatolia Region	Malatya, Elazig, Erzurum, Van, Kars
Southeastern Anatolia Region	Gaziantep, Diyarbakir, Sanliurfa, Batman
Black Sea Region	Samsun, Trabzon, Kastamonu
Middle Anatolia Region	Kayseri, Sivas
Mediterranean Region	Kahramanmaras

Table 2.3: Growth Centres (Provinces) in Turkey (Source: SPO, 2007, p.39)

the growth pole policy in the following years. With the 9th FYDP (2007-2013), the concept of ‘attraction centres’ was proposed in the Plan³¹. The idea was to identify some centres³² that have potential to grow and provide services to their hinterlands; and then develop their accessibility, physical and social infrastructure. Following the 9th FYDP, the policy idea of attraction centres is also mentioned in other policy documents³³. Moreover, this idea is also used to channel the spatial distribution of EU funds in Turkey (SPO, 2007). To this end, 15 provinces (Table 2.3) are identified as growth centres to allocate the spatial distribution of EU funds.

³¹ 9th FYDP, p. 92.

³² The provinces are: Diyarbakir, Sanliurfa, Elazig, Malatya, Kayseri, Sivas, Erzurum, Gaziantep, Konya, Samsun, Trabzon and Van.

³³ 2007, 2008, 2009, 2010 State Planning Institute Institutional Financial Condition and Expectation Reports, the 60th Government Action Plan (10.01.2008), GAP Action Plan (2008-2012), 2008-2010 Preparation of Capital Investment Plan, 2007-2013 State Planning Institute Strategic Cohesion Framework, 2007-2009 Medium Term Program

2.3.2.2 *Towards Flexible Production*

After the 1980s, the importance of flexible production and specialization were at the heart of local economic success in developed economies (Brusco, 1982; Sabel, 1989; Piore and Sabel, 1984; Becattini, 1991; Storper, 1993). The policy ideas of flexible production and specialization were reflected in the 4th FYDP (1979-1983) as economic integration would succeed with the exchange of goods and services within multiple sectors and regions³⁴. With the 1982 Constitution, the whole country was divided into provinces and provinces into sub groups “for the purpose of providing effective and cohesive public services”³⁵. Public investment in infrastructures and financial incentives were the two main components of Turkey’s regional policy strategy. In this sense, the Turkish approach was not different compared to the EU (Celebioglu and Dall’erba, 2009; Dall’erba and Le Gallo, 2008; Molle, 2007) and the US (Drabenstott, 2006; Vadali, 2008) during the same era. The policies were intended to renew economic growth on the basis of an export oriented strategy. The influence of export base theory (Arslan and Wijnbergen, 1993) led to the decentralization of industrial activities from the metropolitan cities and the industrial expansion of the provinces adjacent to the metropolitan regions (Gezici and Hewings, 2004). With the combination of an export push and foreign capital inflows, new reforms were conducted in Turkish policy. The new economic policy shifted from a heavily regulated and controlled mixed economy to the neoliberal idea of “free market economy”. In addition, there was a shift of public investment from manufacturing to infrastructural activities such as transport, communications and energy due to the

³⁴ For the detailed information, see “Bolgesel Gelisme Ozel Ihtisas Komisyonu Raporu”, Sekizinci Bes Yillik Kalkinma Planı, DPT, Nisan 2000.

³⁵ Article no. 126, 1982 Constitution

complementary role of private sector activities in the post 1980 period. With the 5th FYDP (1985-1989), the new changes were reflected in the regional plans by specification of potential sectors for the acceleration of development and the effective use of local resources. To achieve this end, 16 regions were formed within the concept of “Staging of Settlement Centres in Turkey”³⁶. Businesses were provided various financial incentives to set up their businesses in less developed regions. Also the concept of ‘Specialized Industrial Zones’ was introduced with the 5th FYDP. This was followed by the emergence of Agricultural Based Industrial Zones in 2008. In the 9th FYDP (2007-2013), the policy idea of supporting clusters was encouraged to support innovation, increase productivity and employment and increase collaboration; and national and international competitiveness.

2.3.2.3 From Industrial Zones to Clustering

After the 7th FYDP (1996-2000), regional development policies started to become more focused. For the first time in the planning period of Turkey, industries were intended to be differentiated across the nation depending on the characteristics of the regions. Organized Industrial Zones (OIZs) Law 4562³⁷ came into force to support foundation and administrative process of the OIZs. Supporting Research and Development (RD) activities and university-industry collaboration were encouraged in more developed regions. Technology started to emerge as a crucial element in development. Governments started to encourage technology oriented projects in Turkey by providing various incentives.

³⁶ In 1982, the State Planning Institute undertook a study by taking into consideration the mutual goods, service, human and news flow prediction

³⁷ The Law was published in Official Gazette No: 24021 on 15.04.2000

After the recession in February 2001, Turkey implemented another stabilization programme under the auspices of the IMF and the World Bank to ‘empower Turkish economy’. In April 2001, a new economic programme was introduced which contained new measures to address exports, SMEs and financial problems of companies. In the 8th Five Year Plan (2001-2005), this idea was intended to increase the competitiveness and productivity of industry, to generate new employment opportunities and to promote and maintain sustainable growth within an outward oriented structure in accordance with the framework of market principles and in compliance with international agreements. Technology Development Zones Law No. 4691 came into force on July 6, 2001 to regulate the support of R&D activities as sources of innovations in production. Also, in 2004, the ‘cluster’ concept emerged for the first time in a policy document in the ‘SME Strategy and Action Plan’. In addition to internal policies, two Accession Partnership Documents³⁸ were accepted by the European Commission during this period. In the documents, the EU asked Turkey to form the classification of the Nomenclature of Territorial Units for Statistics (NUTS) as a basis of Regional Development Agencies (RDAs). The EU also demanded that Turkey must develop a national policy of economic and social cohesion aimed at reducing regional differences and the adoption of a legal framework that would facilitate the implementation of EU regional policy (Commission, 2003). A new division of regions at the NUTS-II level was accepted³⁹ in 2006 as an example of the transformation of the governance structure. In the same legislation, RDAs were defined as semi departmental agencies by the central government.

³⁸ The first Accession Partnership Document was accepted on March 8, 2001 and the second one was accepted on May 19, 2003.

³⁹ The legislation was passed on 25 January 2006, The Law on the Establishment, Coordination and the Tasks of Development Agencies, Laws No. 5449

In the final 9th FYDP (2007-2013), rather than increasing the competitiveness of less developed regions as in the previous Plans, the aim was to increase the competitiveness of all regions and decrease regional inequalities. To this end, a regional and spatial development framework is proposed to be developed at the national level and regional development strategies and plans are anticipated to be prepared in cooperation with the RDAs. Physical infrastructure requirements of enterprises as well as network creation and clustering initiatives are supported. As well as stated in the 2007-2009 SME Strategy and Action Plan, the policy idea of supporting clusters was encouraged in the 9th FYDP. OIZs are considered as the places where an environment for clustering is created. Therefore, determining the principles regarding the place selection of OIZs was revised⁴⁰. Support for clustering under the leadership of driving sectors was ensured within a strengthened social network. In this framework, the creation of mechanisms which supported local clusters and collaboration among the agents were encouraged. The concept of ‘attraction centres’ was once again⁴¹ emphasized as a supporting mechanism for the clustering idea during this period. Also the 2009-2011 Medium Term Program (MTP) which was prepared according to the 9th FYDP encouraged clustering policies that supported innovation, increased productivity and employment and increased

⁴⁰ The Organized Industrial Zones Place Selection Regulation was published in Official Gazette No: 26759 on 17.01.2008. The Regulation came into force on 28.06.1997 for the first time and revised on 21.05.2001 according to the OIZs Law 4562.

⁴¹ Previous policy documents: 2007, 2008, 2009, 2010 State Planning Institute Institutional Financial Condition and Expectation Reports, the 60th Government Action Plan (10.01.2008), GAP Action Plan (2008-2012), 2008-2010 Preparation of Capital Investment Plan, 2007-2013 State Planning Institute Strategic Cohesion Framework, 2007-2009 Medium Term Program. For the detailed information see Serteser, S. (2008), Bolgesel Gelismeye ‘Yeni’ Bir Politika Araci: Cazibe Merkezleri, *Degerlendirme Notu*, TEPAV.

collaboration and national and international competitiveness⁴². In fact, in 2009, the State Support for Investment Decree⁴³ stated that public investment would be provided according to regional and sectoral priorities. The following MTPs (2010-2012 MTP and 2011-2013 MTP) also mention clustering policies to facilitate development based on local dynamics and endogenous potential of regions as well as the Strategic Document of Turkish Industry 2011-2014 (through the EU Membership)⁴⁴.

2.4 The Structure of the Turkish Economy

Located at the intersection of Europe, the Middle East, the Balkans and the former Soviet Union, the Turkish economy has undergone profound structural changes since the establishment of modern Turkey in 1923. The geo-strategic position has enabled Turkey's economic performance to rely heavily on an export-oriented growth strategy and this has resulted in a massive economic transformation from an agricultural based closed economy to a competitive, market oriented economy. The share of agriculture in GNP fell from 67 per cent in 1927 to 42 per cent in 1961, while that of industry rose from 10 per cent to 23 per cent⁴⁵. The transformation in the sectoral structure continued throughout the years. In 1968, the share of agriculture in GDP was 33.3 per cent, while that of industry was 17.2 per cent and services 49.5 per cent (Table 2.4).

⁴² The Program was prepared by the State Planning Institute and published in Official Gazette No: 26920 on 25.06.2008.

⁴³ The State Support for Investment Decree was published in Official Gazette No: 15199 on 14.07.2009

⁴⁴ The Document was published by the Turkish Republic Ministry of Industry and Trade in December, 2010.

⁴⁵ First Five Year Development Plan

By the end of 2010, the share of agriculture was only 8.7 per cent, while that of industry increased to 28.3 and services increased to 63.1.

A. Major Indicators, 2010										
Population			75.2m;		GDP			\$ 656bn;		
Unemployment rate			11.4%;		GDP per capita			\$ 8.880		
B. Sectoral	1968		1978		1988		1998		2010	
Structure	(%) in GDP	(%) in emp.	(%) in GDP	(%) in emp.	(%) in GDP	(%) in emp.	(%) in GDP	(%) in emp.	(%) in GDP	(%) in emp.
Agriculture	35.4	72.1	22.2	61.7	15.8	49.9	14.8	45.1	8.7	26
Industry	19.5	0.9	29.5	12.6	36.7	15.3	34.2	15.2	28.3	25
Services	45.1	27	48.3	25.7	47.5	34.8	51	39.7	63.1	49
C. Growth Rate (%) of GDP in current prices (1998 base)					1998/99	1999/2000	2000/2005	2005/2010		
GDP (Purchaser's price)					49	59.3	289	70.2		
Agriculture					24.8	42.5	261	49.5		
Manufacturing					36.3	46.2	234	52.3		
GDP per capita (\$)					-9.9	5.7	70	43.5		

Table: 2.4 Turkey: Basic data (Source: TUIK, 2011 and Author's calculations)

This structural change has been reflected in the percentage of employment as well. 72.1 per cent of the population was employed in the agricultural sector in 1968, while industry and services constituted 27.9 per cent of the employment. By the end of 2010, the total number of people working in industry and services almost tripled. 25 per cent of the population was employed in industry and 49 per cent of the population was employed in services, while the workforce of agriculture decreased to 26 per cent.

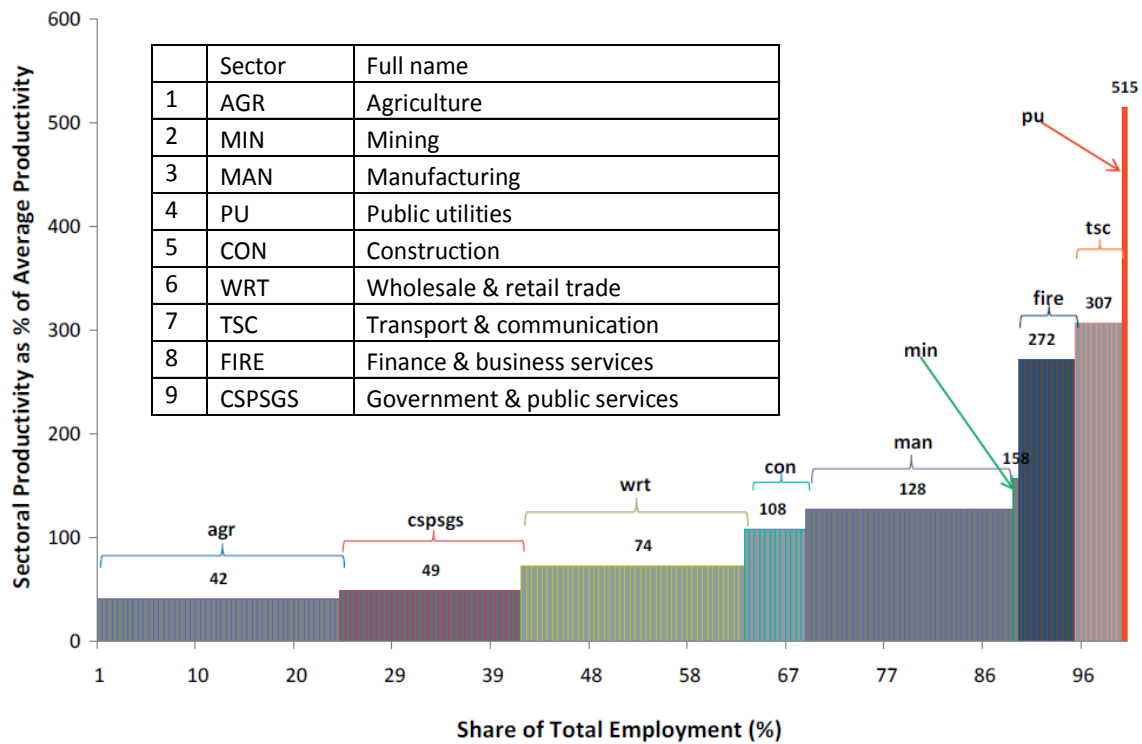


Figure 2.1: Labour productivity gaps in Turkey, 2008 (Source: Rodrik, 2010)

GDP (Purchaser's price) increased by 20.2 per cent between 2005 and 2010, while GDP per capita accelerated to 43.5 per cent. Similarly, growth rate (%) of GDP in agriculture increased 49.5 per cent during the same period, while that of manufacturing increased 52.3 per cent. However, although the share of employment and GDP growth rates of agriculture and manufacturing sectors are close to each other, there is a huge disparity between productivity levels. Rodrik (2010) observed the productivity gaps in the Turkish economy by comparing value added per employee across different sectors (Figure 2.1). The analysis shows that average productivity in manufacturing is 3.04 times that of agriculture. Moreover, the average productivity of the agriculture sector remains the lowest amongst other sectors. This highlights the effects of structural change in the labour market on productivity levels. However, unfortunately, productivity gaps exist within the same sectors in Turkey.

Rank	Companies	Profit (TL)
1	Tüpraş-Türkiye Petrol Rafinerileri A.Ş.	27.732.867.295
2	EÜAŞ Elektrik Üretim A.Ş. Genel Müdürlüğü	6.249.112.724
3	Ford Otomotiv Sanayi A.Ş.	6.006.491.811
4	Ereğli Demir ve Çelik Fabrikaları T.A.Ş.	5.014.572.054
5	Oyak-Renault Otomobil Fabrikaları A.Ş.	4.710.974.763
6	Tofaş Türk Otomobil Fabrikası A.Ş.	4.184.361.976
7	Arçelik A.Ş.	4.068.892.569
8	İçdaş Çelik Enerji Tersane ve Ulaşım San. A.Ş.	3.828.300.738
9	Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	3.476.676.147
10	Aygaz A.Ş.	3.279.709.953

Table 2.5: Top industrial enterprises (Source: ISO, 2009)

Large companies have higher productivity levels than other companies and of course the smaller ones. The İstanbul Chamber of Industry⁴⁶ (İSO) produces a list of the "Top 500 industrial enterprises" every year. Although the top 10 companies represent almost 28 percent of total production or sales in 2008, the share of five Koç⁴⁷ companies among the top 10 is around 45 percent (Table 2.5). What is more striking is that Tüpraş (Turkey's largest industrial enterprise based on crude oil processing) alone represents almost 40 per cent of the top 10 companies' sales. Tüpraş is four-and-a-half times larger than the second biggest firm. Another observation is that Koç

⁴⁶ The data can be accessed through the website www.iso.org.tr

⁴⁷ Koc Holding is Turkey's dominant industrial conglomerate. Koc Holding has five companies in the Top 10 Companies list: Tüpraş-Türkiye Petrol Rafinerileri, Ford Otomotiv Sanayi AS, Tofaş Türk Otomobil Fabrikası, Arçelik and Aygaz.

companies compete with each other at the top of the industrial rankings. The figures are some serious signs of a rising concentration, or oligopoly structure, in Turkish industry.

Another characteristic of the Turkish economy exists within the spatial distribution of income in the country. The most populated cities in Turkey are located in the western part of the country such as Istanbul (more than 12 million), Ankara (circa 5 million), Izmir (circa 4 million) and Bursa (circa 3 million). The uneven distribution of wealth in Turkey, mostly in favour of the Western part of the country, remains one of the major concerns in the regional economic development. Studies have been undertaken to explain problems of regional inequality and heterogeneity (Celebioglu and Dall'erba, 2009; Gezici and Hewings, 2004; Ozturk, 2002; Tansel and Gungor, 2000; Ates *et al.*, 2000). They point out that the geographical location of provinces influences the level of income and education, creating spatial inequalities between the eastern and western parts of Turkey. Another literature focuses on inequalities in salaries and migration from east to west (Elveren and Galbraith, 2008; Kirdar and Saracoglu, 2007). They show that inequalities in salaries and migration have increased the rate of urbanization in Turkey. These problems raise serious concerns about the effectiveness and efficiency of the Turkish economy and Turkish regional policy.

2.4.1 The Economy During the Last Decade (2000 and onwards)

Recent policy reforms, particularly fiscal discipline, inflation targeting and the overhaul of financial sector oversight, together with political stability and the seat of

EU accession negotiations, improved confidence in the management of the economy. Turkey's economic legislation has been increasing aligned with the main policies and standards of the EU. Current economic policy envisages increasing the role of the private sector in the economy⁴⁸. Public sector reforms are aimed at the decrease of borrowing requirements and channelling excess funds to the more efficient private sector. However, the economy is still a work in progress. Inflation is a big problem and unemployment remains high at 11.4% in 2010 (Figure 2.2). This raises some questions regarding the dynamics of the Turkish economy and policy approaches formulated to facilitate economic development.

For example, Ersoy (2013) argues that not only the spatial organization of company headquarters remains important in urban systems but also they are linked to the dynamics of local and regional economies within developing countries. In the case of Turkey, Istanbul and Ankara dominate the corporate landscape, although the smaller cities of Adana, Bursa, Gaziantep occupy important niches. He demonstrates that there are clear variations in the sectoral agglomeration of companies across the Turkish urban system

⁴⁸ 9th Five Year Development Plan

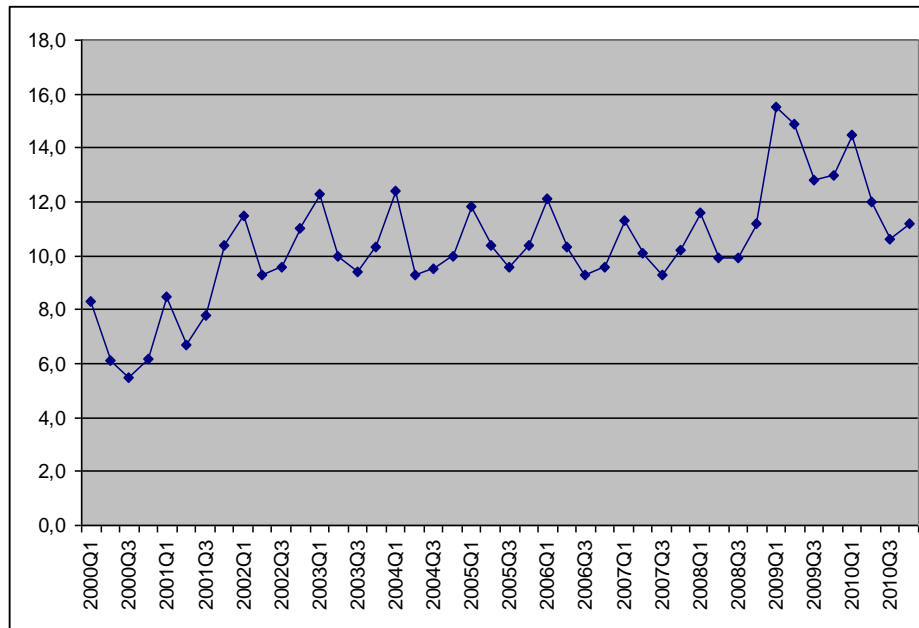


Figure 2.2: Unemployment rate in Turkey (Source: TUIK, 2011)

The last crisis was in 2008-09 at the time the financial crisis took place in the USA and Europe. This was different from previous crises in the sense that there was no attempt to reduce the current account deficit in Turkey (Uygur, 2010). Instead, adjustments came with a decrease in private demand, lower import prices and the realignment of the real exchange rate. However, what made this crisis different to the previous one was the adverse affects on the real economy (Rodrik, 2010). In the first quarter of 2009, GDP fell by 14.3 % and unemployment rate rose to 14.2 %. Studies show that the current austerity measures would not be sufficient to consider, given the present unemployment rates and under the effects of global financial crises (Rodnik, 2010; Uygur, 2010). The latest crisis had an impact on total imports, exports and the trade balance (Figure 2.3).

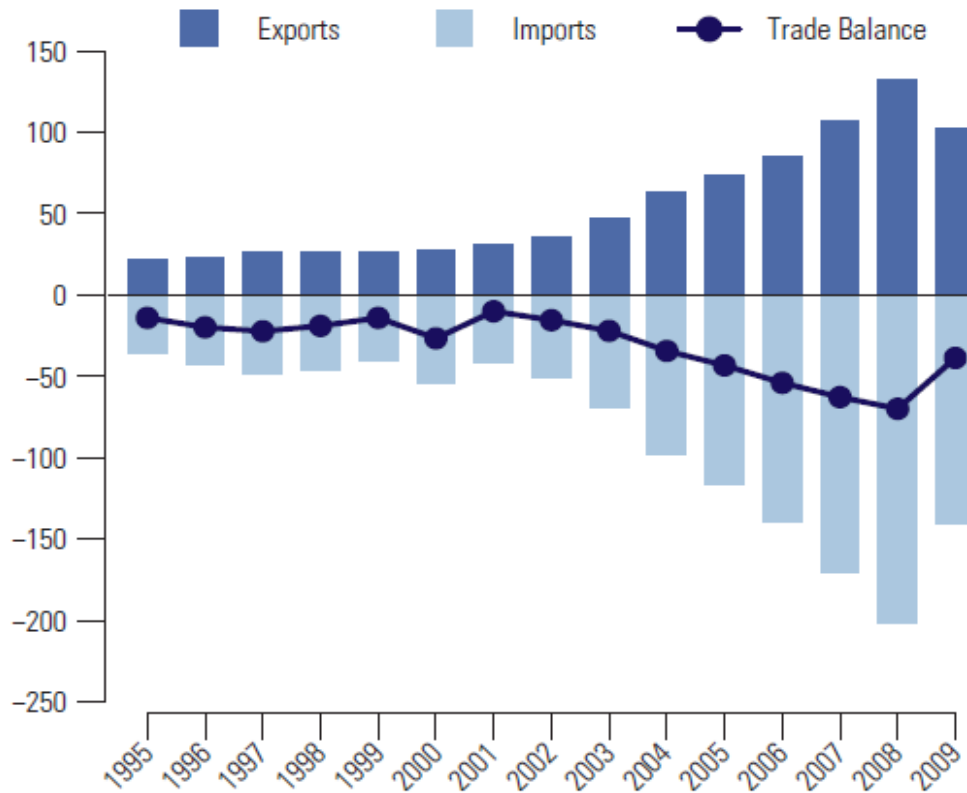


Figure 2.3: Total imports, exports and trade balance, Bln US\$ by year
(Source: UN Comtrade, 2011)

After years of continuous growth, total exports reached 132 bln US\$ in 2008 (Table 2.6). However, after the crisis, the value of Turkish exports dropped by 22.6 per cent in 2009 and amounted to 102.1 bln US\$ while that of imports declined by 30.2 per cent to 140.0 bln US\$. Likewise, the trade deficit decreased from 70 bln US\$ to 38.8 bln US\$ in 2009.

In 2009, although the value of exports of machinery and transport equipment decreased by 26.4 per cent in comparison to the previous year, it had the highest share of Turkey's exports with 28.2 per cent. This was followed by manufactured goods classified mainly as material (28%) and miscellaneous manufactured articles (17%). Similarly, the average growth rates of their export values decreased by 29.5 and 15.8

Classification	2009	Avg. Growth rates (%)		2009 share
		2005-2009	2008-2009	
Total	102 138.5	8.6	-22.6	100.0
Food and live animals + Beverages and tobacco	10 059.3	8.5	0.1	9.8
Crude materials, inedible, except fuels + Animals and vegetable oils, fats and waxes	2 650.6	11.1	-22.8	2.6
Mineral fuels, lubricants and related materials	3 901.1	10.2	-48.2	3.8
Chemicals and related products	4 836.7	14.6	-14.6	4.7
Manufactured goods classified chiefly by material	28 600.8	8.8	-29.5	28.0
Machinery and transport equipment	28 803.5	7.6	-26.4	28.2
Miscellaneous manufactured articles	17 377.7	2.1	-15.8	17.0
Commodities and transactions not classified elsewhere in the SITC	5 908.9	52.0	18.5	5.8

Table 2.6: Export values in million US\$ (growth and shares)

(Source: UN Comtrade, 2011)

per cent relatively in comparison to the previous year. Although much of what is described here reflects the slowdown of the global economy since the 2008 financial crisis, the average growth rates of exports for some classifications accelerated rapidly

specifically in Turkey between 2005 and 2009. Chemicals and related products constituted 4.7 per cent of the export values in 2009 but growth rate of their export grew 14.6 per cent, on average, between 2005 and 2009. Similarly, crude materials, inedible, except fuels; and animal and vegetable oils, fats and waxes constituted only 2.6 per cent of export values in 2009. However, the average growth rates of the same classification increased 11.1 per cent between 2005 and 2009. The average growth rates in export values show that some of these classifications have great potential in terms of export. They highlight some of the emerging sectors in the Turkish economy while emphasizing the need for structural change in the Turkish market economy.

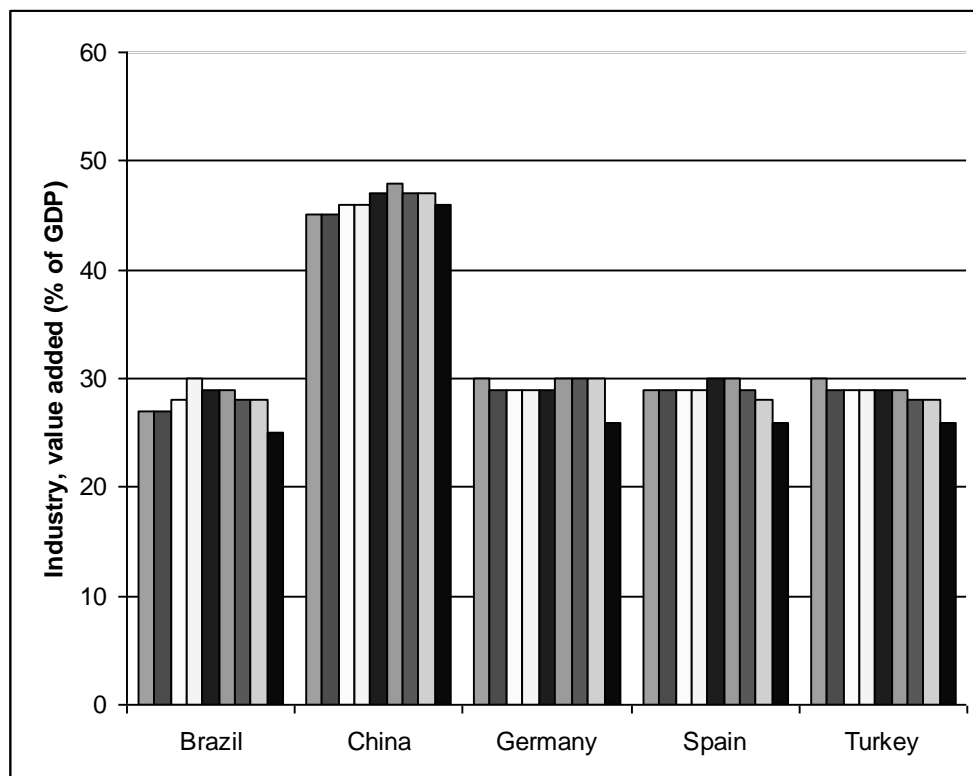


Figure 2.4: Industry value added⁴⁹, 2001-2009 (Source: World Bank, 2011)

⁴⁹ Industry corresponds to ISIC divisions 10-45 and includes manufacturing (ISIC divisions 15-37). It comprises values added in mining, manufacturing, construction, electricity, water, and gas (it does not include services).

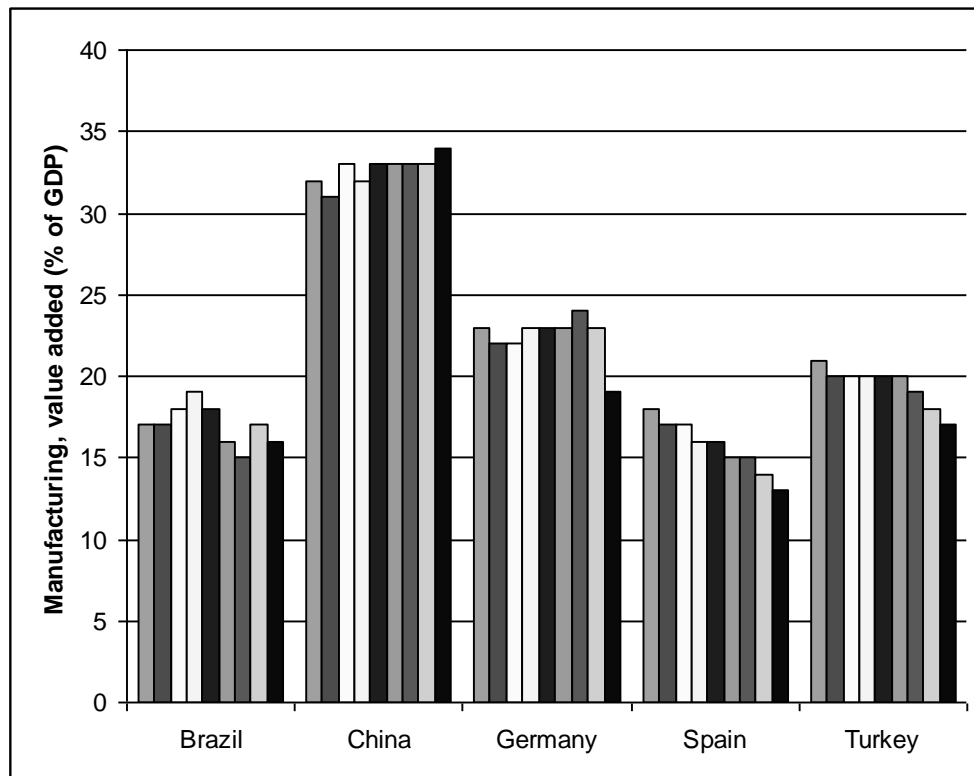


Figure 2.5: Manufacturing value added, 2001-2009 (Source: World Bank, 2011)

Fortunately, although the effects on the real economy were deeper, Turkey has been able to maintain its comparative advantage in industrial and manufacturing net output⁵⁰. Figure 2.4 and 2.5 depict the comparative outcomes in industrial value added and manufacturing value added amongst Brazil, China, Germany and Spain. Although there was a decrease in both values between 2007 and 2009 in Turkey, the average growth rates between 2001 and 2009 were 28.8 and 19.4 per cent respectively. These values were higher than that of some other countries. For example, the average growth rate of GDP in manufacturing value added was 27.8 per cent in Brazil, while that of industry value added was 17 per cent between 2001 and 2009. Although the average

⁵⁰ Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs.

growth rate of GDP in manufacturing was 0.2 per cent higher in Spain, that of industry value added was 15.6 per cent during the same period.

2.4.2 Europeanization of Turkey⁵¹

Turkey is a unitary and centralized country under the terms of the Constitution. Provinces, municipalities, metropolitan areas and village administrations make up the different forms of local government of Turkey. It has been more than five decades since Turkey's Europeanization process started. In 1957, the Treaty of Rome Agreement was signed and in 1959, Turkey applied for associate membership of the EU. With the Ankara Agreement in 1963, Turkey's first relationship with Europe was established. In 1987, Turkey applied for full membership to the EU and joined for the Customs Union (CU) in 1996. In fact, Turkey was (and still is) the only country amongst the member states and the candidate states that established a CU agreement with the EU. This was a strong indicator of the efforts of trying to integrate the Turkish economy until that of the EU in 1996. In 2004 (December the 17th), Turkey was recognized as the country which had fulfilled at least the initial requirements to start negotiations with the EU and ten months after in October 2005, the actual negotiation period was started.

Negotiations are opened on the basis that Turkey sufficiently meets the political criteria set by the Copenhagen European Council in 1993, for the most part later

⁵¹ This section of the thesis is written in accordance to a lecture delivered by His Excellency Mr Yigit Alpogan (Ambassador of the Republic of Turkey to the Great Britain and Northern Ireland since July 2007) and a private interview with him (undertaken by Aksel Ersoy) on May 11th, 2010 at the University of Birmingham. That lecture and the interview was then published in Political Reflection, Vol 1, No:3, Sep. 2010.

enshrined in Article 6(1) of the Treaty on EU and proclaimed in the Charter of Fundamental Rights. The EU expects Turkey to sustain the process of reform and to work towards further improvement in respect of the principles of liberty, democracy, the rule of law and respect for human rights and fundamental freedoms, including relevant European case law; to consolidate and broaden legislation and implementation measures specifically in relation to the zero tolerance policy in the fight against torture and ill-treatment and the implementation of provisions relating to freedom of expression, freedom of religion, women's rights, ILO standards including trade union rights, and minority rights. To ensure the irreversibility of progress in these areas and its full and effective implementation, notably with regard to fundamental freedoms and to full respect of human rights, progress is closely monitored by the Commission, which is invited to continue to report regularly on it to the Council, addressing all points of concern identified in the Commission's 2004 report and recommendation as well as its annual regular report.

As agreed at the European Council in December 2004, these negotiations are based on Article 49 of the Treaty on EU. The shared objective of the negotiations is Turkey's accession to the EU. These negotiations are an open-ended process, the outcome of which cannot be guaranteed beforehand. While having full regard to all Copenhagen criteria, including the absorption capacity of the Union, if Turkey is not in a position to assume in full all the obligations of membership it must be ensured that Turkey is fully anchored in the European structures through the strongest possible bond. Of the 35 policy chapters⁵², Turkey has completed one, 13 remain under discussion while 18

52 Chapters: Free movement of goods (open); Freedom of movement for workers; Right of establishment and freedom to provide services; Free movement of capital (open); Public procurement; Company law;

have been frozen because of opposition by EU member states including Cyprus and France.

After Turkey officially joined in the Helsinki summit of EU leaders as a candidate country in 1999, important changes have taken place in Turkey's governance structure. The Constitution has been amended and this has brought about a re-examination of administrative structures in Turkey. There is a commitment to create a fully democratic government system to meet EU criteria which involve the further modernization of the public administrative system. Issues⁵³ have been discussed in the comprehensive public administration reform package and they have been partially adopted.

In terms of economic outlook, the structural reforms, hastened by Turkey's EU accession process, have paved the way for comprehensive changes in a number of areas. The main objectives of these efforts were to increase the role of the private sector in the Turkish economy, to enhance the efficiency and resilience of the financial sector, and to place the social security system on a more solid foundation.

Intellectual property law (open); Competition policy; Financial services; Information society and media (open); Agriculture and rural development; Food safety, veterinary and phytosanitary policy; Fisheries; Transport policy; Energy; Taxation; Economic and monetary policy; Statistics; Social policy and employment; Enterprise and industrial policy (open); Trans-European networks; Regional policy and coordination of structural instruments; Judiciary and fundamental rights; Justice, freedom and security; Science and research (closed); Education and culture (open); Environment; Consumer and health protection (open); Customs union (open); External relations (open); Foreign, security and defence policy (open); Financial control (open); Financial and budgetary provisions (open); Institutions (open); and Other issues

⁵³ The law on Public Financial Management and Control (PFMC) was passed in 2003, but the implementation of some provisions was postponed until 2006. The Law on Special Provincial Administrations was passed in June 2004 and then vetoed by the president, but then finally passed in 2005. The Constitutional Court is reviewing some of its provisions. The Law on Municipalities was passed in July 2004 and vetoed by the President. It was approved in June 2005. The Constitutional Court is reviewing some of its provisions.. The Law on Metropolitan Municipalities was passed in June 2004 and secondary legislation is in preparation and the Law on Association of Local Governments was passed in July 2005. A number of laws are still pending including the Law on Public Administration Principles or Framework Law, the Law on Civil Service, the Law on Regional Development Agencies and the Law on the Turkish Court of Auditors

According to the Investment Report of Turkey (2011), as these reforms have strengthened the macroeconomic fundamentals of the country, inflation drastically decreased to 6.4 percent by the end of 2010, down from 30 per cent in 2002, while the EU-defined general government nominal debt stock fell to 41.6 per cent from 74 per cent in a period of eight years between 2002 and 2010. Hence, Turkey has been meeting the “60 per cent-EU Maastricht criteria” for the public debt stock since 2004. As GDP levels more than tripled to USD 736 billion in 2010, up from USD 231 billion in 2002, GDP per capita soared to USD 10,079, up from USD 3,500 in the given period (TUIK, 2011). The visible improvements in the Turkish economy have also boosted foreign trade, while exports reached USD 114 billion by the end of 2010, up from USD 36 billion in 2002. Similarly, tourism revenues, which were around USD 8.5 billion in 2002, exceeded USD 20 billion in 2010. Significant improvements in such a short period of time have registered Turkey on the world economic scale as an exceptional emerging economy, the 16th largest economy in the world and the 6th largest economy when compared with the EU countries, according to GDP figures (at PPP) in 2010 (Invest in Turkey, 2011).

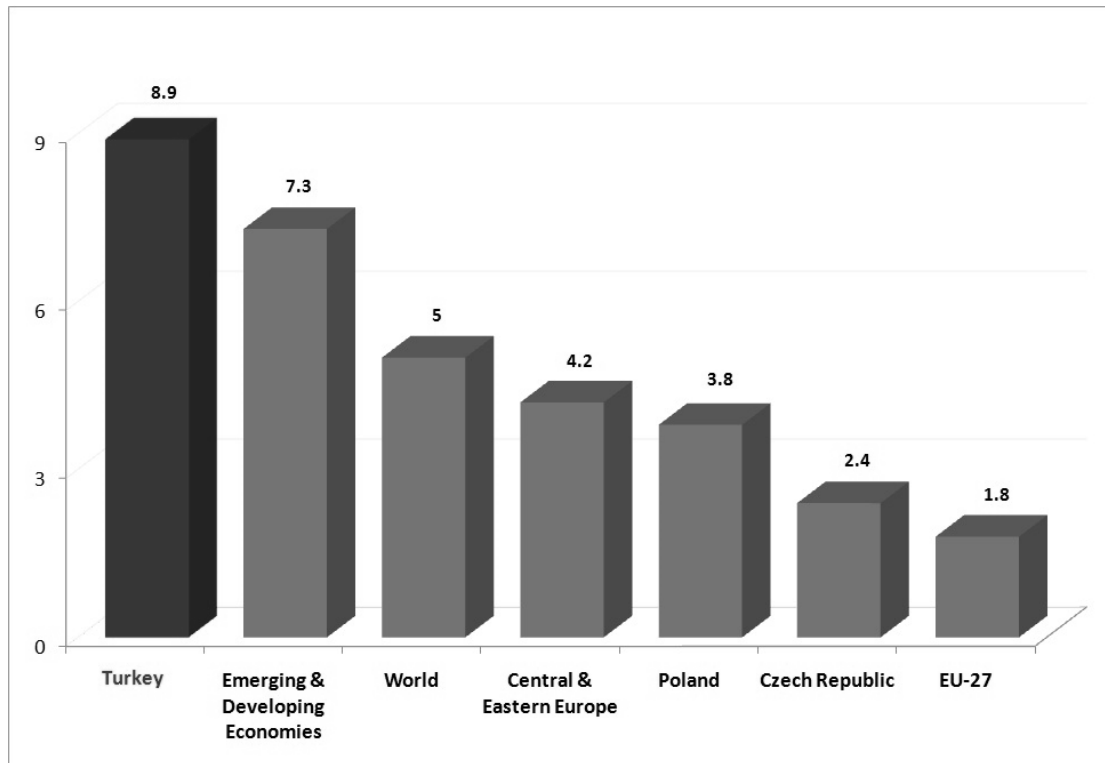


Figure 2.6: 2010 Real GDP Growth (%) (Source: IMF, 2011)

Prior to the recent global recession which hit all economies throughout the world, the Turkish economy sustained strong economic growth for 27 quarters consecutively (2005-2011), making it one of the fastest growing economies in Europe (Invest in Turkey, 2010). However, the global financial crisis has considerably challenged the macroeconomic and financial stability of many economies by adversely affecting financing facilities and external demand, thus causing a significant slowdown in all global economic activities.

While the financial markets in Turkey proved resilient to the crisis, the decrease in external demand and slowing international capital flows have had a negative impact

on the economy, thus causing an economic contraction in 2009. However, the perceived positive developments in the economy showed signs of a fast recovery beginning as early as the last quarter of 2009, with an impressive 5.9 per cent economic growth rate, hence making Turkey one of the fastest recovering economies in the world. Durmuş Yılmaz, The Governor of the Central Bank of the Republic of Turkey, explained this fast recovery in terms of Turkey's risk premium indicators. Yılmaz (2011) states that:

“...risks regarding the debt sustainability of peripheral euro area countries remained vigorous and continued to dominate the financial markets...[However] Turkey's risk premium indicators performed better than many other countries and remained below pre-crisis levels. This positive development is attributable to country-specific favourable conditions such as upgrades by credit rating agencies, reduced political uncertainty in the aftermath of the referendum period and the revised Medium Term Program signalling further fiscal discipline” (Yılmaz, 2011).

Turkey's robust economic growth continued in 2010 as well, having reached 12 per cent, 10.3 per cent, 5.2 per cent and 9.2 per cent in the first, second and third quarters of 2010 respectively, thus achieving an overall growth rate of 8.9 per cent throughout 2010 (Invest in Turkey, 2010). Turkey, with such a robust economic performance, stood out as the fastest growing economy in Europe and one of the fastest growing economies in the world (Figure 2.7).

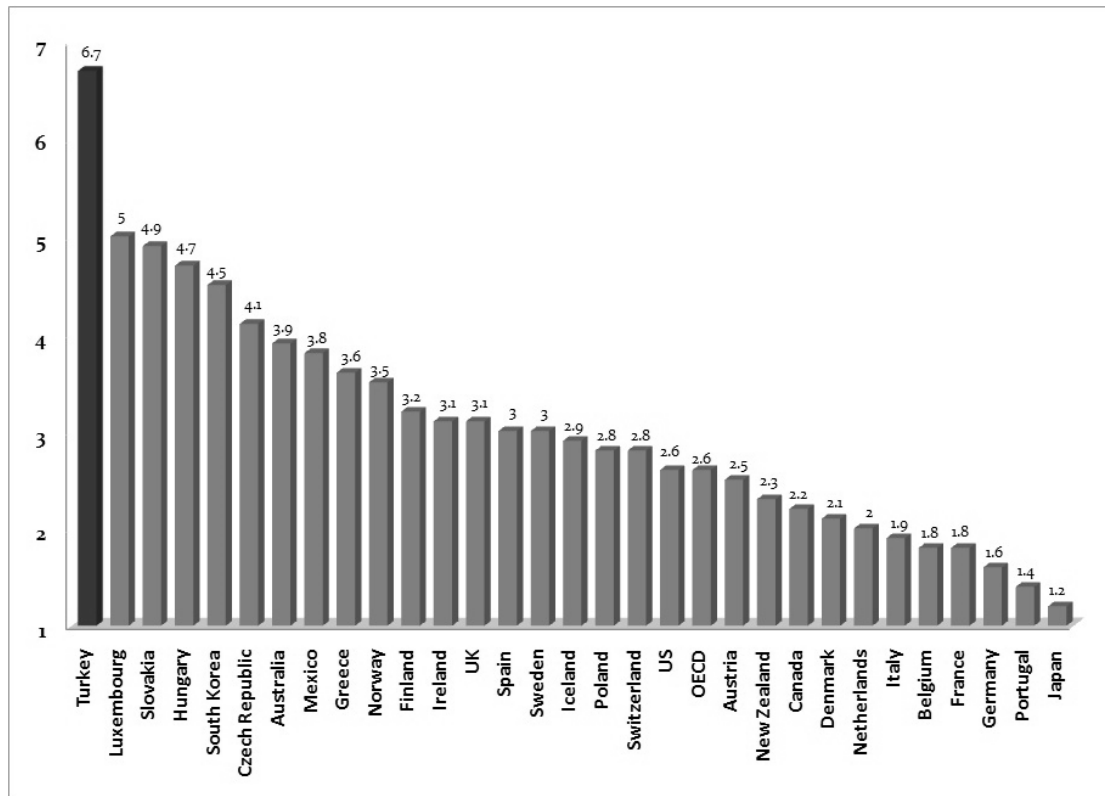


Figure 2.7: Annual Average Real GDP Growth (%) Forecast in OECD Countries
2011-2017 (OECD, 2011)

The European Commission monitors Turkey's progress in all areas, making use of all available instruments, including on-site expert reviews by or on behalf of the Commission. The Commission informs the Council of Turkey's progress in any given area when presenting draft EU Common Positions. The Council takes this assessment into account when deciding on further steps relating to the negotiations on that chapter. In addition to the information the EU may require for the negotiations on each chapter and which is to be provided by Turkey to the Conference, Turkey will be required to continue to provide regularly detailed, written information on progress in the alignment with and implementation of the *acquis*, even after provisional closure of a chapter. In the case of provisionally closed chapters, the Commission may

recommend the re-opening of negotiations, in particular where Turkey has failed to meet important benchmarks or to implement its commitments.

2.5 Regional Development Experience in Turkey

Turkey's regional development experience can be categorized under two periods: before the EU candidacy and after the EU arrangements. During these two periods, while some regions enjoyed the competitiveness of their region thanks to their regional potential, some regions started to lag behind the national economy. To be able to cope with the difficulties of competitiveness of the regions, new strategies and initiatives have been defined by the Turkish governments and the EU throughout these periods.

2.5.1 Before the EU candidacy

Since globalization was pushing the limits of the border concept of the nations, regional competitiveness became crucial in Turkish economic development. However, some regions could not adapt to the changing economic conditions within globalization and this led to regional inequalities in Turkey. Although there were not many systematic forms of regional governance before the EU candidacy, there were some initiatives to support regional development in this period. One example was the launching of the Southeastern Anatolian Project (GAP) which was started in 1989.

The Southeastern and Eastern (SE&E) parts of Turkey used to be underdeveloped regions of Turkey for many years due to populist and misguided policies applied by the Turkish governments (Ozturk, 2002). The clear difference in economic development between the Western and Eastern parts of Turkey has caused a significant economic crisis in the East for many years. That is why the Southeastern Anatolia Project has a very important position in developing the region. The Southeastern Anatolia Project is a multi-sector and integrated regional development project in the context of sustainable development. Its basic objectives include the improvement of living standards and income levels of people so as to eliminate regional development disparities and contributing to such national goals as social stability and economic growth by enhancing productivity and employment opportunities in the rural sector. The project area covers 9 administrative provinces (Adiyaman, Batman, Diyarbakir, Gaziantep, Kilis, Mardin, Siirt, Sanliurfa and Sirnak) in the basins of the Euphrates and Tigris and in Upper Mesopotamia⁵⁴.

The Southeastern Anatolia Project was originally planned in the 1970s consisted of projects for irrigation and hydraulic energy production on the Euphrates and Tigris. Then the project was transformed into a multi-sector social and economic development program for the region in the 1980s (GAP, 2011). The project rests upon the philosophy of sustainable human development, which aims to create an environment in which future generations can benefit and develop. The basic strategies of the project include fairness in development, participation, environmental protection, employment generation, spatial planning and infrastructure development

⁵⁴ see the official website of the GAP

(Ersoy, 2008). Starting as an energy and irrigation project to develop the rich land and water resources of the region, the Southeastern Anatolia Project was transformed into an integrated regional development project with the completion of the Southeastern Anatolia Project Master Plan in 1989 (GAP, 2011).

The Zonguldak Bartın Karabük Regional Development Plan is another example intended to support regional development before the EU candidacy. The Plan (1995-1997) represented and reflected the economic policies of the period. Strategies were intended to enlarge private sector investments, enhance small and medium enterprises, the development of universities and rehabilitation of Filyos River (Gundogan, 2005). The main emphasis of the Plan was on diversification of the regional economy and the socio-economic structure from coal mining and the complementary iron and steel manufacturing industry (Isin, 2009). The objectives of the Plan were regional economic and social analysis; identification of suitable investment areas, and especially reinforcement of private investments by developing new investment alternatives for the region (DPT, 1997). The geographical location of the region as well as the large industry basis was highlighted as potential resources to manage the development process efficiently.

The Plan proposed the development of small and medium enterprises in the field of production and processing of local raw materials (DPT, 1997). Agriculture, animal husbandry and transportation links were proposed to be developed with the Plan. The Plan determined two main references to introduce its regional strategies. The first was related to institutional restructuring and the second one was related to the regional

growth rate of the region. The regional development plan emphasized a redevelopment based on reindustrialization through private sector involvement of new industrial firms. The public sector remained as a supporting mechanism by providing infrastructure, financial help, training and marketing (DPT, 1997). “Promotion of job opportunities, improvement of incomes and value added, favouring a sustainable development” were indicated as three main objectives of the Plan (ibid, p.5). The main strategies were based on certain notions. One idea was that the region would become an alternative industrial and commercial centre by using its geographical proximity. The other notion was in the context of priority of investment which was supposed to mitigate and compensate for the depopulation of the region (Isin, 2009).

2.5.2 Under the EU arrangements

The context for regional policy in Turkey changed during the EU accession period after Turkey committed itself to conforming to government structures and procedures similar to those of the EU policy framework. In practical terms, this means that the state has to facilitate the development of structures of regional governance across the country, in line with the principles of good governance adopted by the EU (Lagendijk *et al.*, 2009). In a more structural sense, the EU is now forcing Turkey to organize the planning and policy system with a more hierarchical and territorially oriented structure (Loewendahl-Ertugal, 2005).

The most important step under the EU arrangements was to introduce a new division of regions at the NUTS-II level (see section 7.2 for more details). In 2006, new

legislation⁵⁵ was passed to facilitate and regulate the establishment of regional development agencies (RDAs). According to the Law, the State Planning Institute (DPT) was responsible for the coordination of RDAs as well as allocation of external funds. According to the new legislation, the governance of the RDAs rests with three bodies: a Development Board, a Management Board and a General Secretariat. The Development Board is constituted of members from representatives of various public and private organizations, NGOs and universities. The Management Board is composed of provincial governors, majors, the chairmen of the Chambers of Commerce and Industry, and three representatives from NGOs or the private sector. The General Secretariats are the executive bodies in RDAs.

Another important issue for Turkey throughout the membership process was the matter of financial assistance. It is possible to categorize the financial assistance period into two different periods (Kara, 2008). The first period (2002-2006) goes back to the Helsinki Summit in 1999. In this conference, it was officially stated that Turkey was a candidate country and it is crucial for Turkey to formulate reforms that accelerate and boost support to benefit the pre-accession strategy. The second period (2007-2013) goes back to the European Union Summit (16-17 December 2004) where Turkey would benefit from the Instruments for Pre-Accession⁵⁶ during the period of 2007-2013. 2002-2006, broken down by main areas of intervention (see Table 2.7).

⁵⁵ The Law on the Establishment, Coordination and Tasks of Development Agencies (Law No. 5449, 25 January 2006)

⁵⁶ Council Regulation (EC) No 1085/2006 of 17 July 2006, Official Journal L210, page 82.

Sector	2002	2003	2004	2005	2006	Total
Political criteria	2 044	15 957	28 650,2	48 248, 18	20 533, 152	115 432, 505
Energy	1 047	5 437	2 500	1 040	1 380	11 404
Telecommunic.	2 260			1 200		3 460
Social Policy	7 000		17 173, 75	7 757, 325	5 000	36 931, 075
Transport	2 299	4 264	4 612,5	1 427, 5		12 603
Environment	15 550	5 450	12 100		12 250	45 350
Internal market	2 250	11 375	11 321, 42	3 973, 875		28 920, 295
Agriculture	17 568	6 169	6 960	28 201, 75	60 528, 35	119 427, 1
JLS	12 207	3 832	1 840		13 025, 75	30 904, 75
Economic Social Cohesion	40 000	45 300	77 556	117 059	182 054, 274	461 969, 274
Community Programs and CDS	18 775	27 319	32 176, 78	40 530, 62	99 360, 322	218 161, 722
Public administration		5 740	11 157, 25	13 361, 75	3 335, 325	33 594, 325
Customs		5 406	22 552, 1		16 532, 854	44 490, 954
Others	5 000	8 851	8 120	14 900	36 000	72 871
Total Allocation	126 000	145 100	236 720	277 700	450 000	1 235 520

Table 2.7: Budgetary allocations (million €) under the Turkey National Programs

(Source: Turkish Ministry of Foreign Trade, 2011)

Between 2002 and 2004, financial assistance provided by the EU was undertaken by annual programs (not based on a strategy document) which were prepared in the European Commission Accession Partnership Documents and Republic of Turkey National Programs. Between 2004 and 2006, the Pre- National Development Plan was prepared as part of the process to develop economic and social adaptation policies and a strategic framework for EU accession. The common characteristic of these periods is that they both emphasise the acceleration of the EU adaptation process. During

these two periods (2002-2004 and 2004-2006), budgetary allocations were defined under the Turkey National Programmes in various sectors. They include: Political criteria; Energy; Telecommunications; Social Policy; Transport; Environment; Internal market; Agriculture; Justice, Freedom and Security (JFS), Economic Social Cohesion; Community Programs and Community Policing Program (CDS); Public administration; and Customs.

The second period is the time when Turkey started to benefit from the Instrument for Pre-Accession Assistance (IPA) which is to help the beneficiary country to face the challenges of European integration and implement the reforms needed to fulfil the Copenhagen criteria for EU membership. The IPA instrument consists of five components: (IPA-I) the Transition Assistance and Institution Building component⁵⁷; (IPA-II) the Cross-Border Cooperation component which applies to border regions between beneficiaries from member states, candidate states and countries in pre-accession status; (IPA III, IV and V) the Regional⁵⁸, Human Resources⁵⁹ and Rural Development⁶⁰ components. As a Candidate Country, Turkey is eligible for all five of these components.

⁵⁷ The Transition Assistance and Institution Building Component translates the priorities set out in the European Partnership in 3 sub-components: Political requirements where EC assistance will be used to support a stable, modern, democratic, multi-ethnic and open society based on the rule of law. Special impetus will be given to Public Administration and Judiciary Reform; Socio-economic requirements where EC assistance will be used in support of the development of the socio-economic environment; and European standards where EC assistance will support and accompany the country in its European integration plan (legal approximation, administration needs and requirements for DIS).

⁵⁸ The Regional development Component supports policy development as well as preparation for the implementation and management of the European Regional Development Fund and Cohesion Fund.

⁵⁹ The Human Resources Development Component supports policy development and the preparation for the implementation and management of the European Social Fund.

⁶⁰ The Rural Development Component supports policy development as well as the preparation for the implementation and management of the Community's common agricultural policy and related policies

The basic policy documents setting out the priorities for programming assistance to Turkey under IPA are the Accession Partnership, the annual Enlargement Strategy Paper, which presents the Commission's overall enlargement policy for the candidate and potential candidate countries and the annual Progress Reports on progress made on the road towards the EU. Also relevant for the definition of assistance priorities are the Negotiation Framework, the Communication on the Civil Society Dialogue, the Community Strategic Guidelines 2007–13, as well as Turkish policy documents such as the 9th Development Plan (2007-2013) and the National Rural Development Strategy (NRDS).

2.6 Conclusion

This chapter has provided an overview description of regional development in Turkey in the context of the pre-EU and post-EU accession periods and in relation to the growing exposure of Turkey to globalization. To date, Turkey's economic history is characterised by two distinct periods, during which the economy shifted from the dominance of the agricultural sector to the dominance of industry and services. The pre-1980s period was based on import-substitution policies which dominated the industrialisation process and the agriculture sector accounted for more than half of the output in the economy. After the 1980s, the policies have been intended to renew economic growth on the basis of an export oriented strategy. With the combination of an export push and foreign capital inflows, new reforms have been conducted in many areas. The new economic policy shifted from a heavily regulated and controlled mixed economy to the neoliberal idea of a "free market economy". Five Year

Development Plans (FYDP), as the main policy documents of governments, have explained the development approaches and tools utilized in Turkey. Throughout the Plans, the policies have moved towards more participatory and introverted approaches emphasizing the endogenous characteristics of regions. After Turkey's officially joining in the Helsinki summit of EU leaders as a candidate country in 1999, important changes have taken place in Turkey's governance structure. The Constitution has been amended and this has brought about a re-examination of the administrative structures in Turkey to create a fully democratic government system to meet EU criteria. Therefore, the EU accession process induces radical changes in regional development policies, bringing about a programme-based and participatory approach. New regional policies are intended to consider the unique economic structure of every local/regional economy, stimulate local/regional resources, improve co-operation among the local/regional agents and bring regional competitiveness to the forefront. In the following chapter, a set of theoretical prepositions that have been discussed in Chapter 3 are explored and discussed within Turkish economic development which has been explained in the current chapter.

3 THEORIZING REGIONAL ECONOMIC DEVELOPMENT

3.1 Introduction

This chapter considers the theoretical context against which seven sets of theoretical propositions on the nature of the mechanisms that promote local economic performance are reviewed. These propositions are: the growth pole model; the product-cycle model; the flexible-production model; the learning region model; the competitive advantage model; the enterprise segmentation model; and the creative class model. These theoretical models are explored in this chapter as they were (except for the creative class model) the foundation for a stream of research by Taylor and Plummer (2001a; 2001b, 2003, 2010) that examined local economic development in Australia. These theories have dominated discussions on local and regional economic development since the 1950s and it is important to explore their effects on a developing country context. The first part of the chapter briefly discusses theories of regional development and processes of change. The second part explores the characteristic features of these theoretical propositions in detail. The final part of the chapter summarizes the whole theorization process in theories of economic development; proposes drivers of local economic growth based on a set of proxy measures: technological leadership; knowledge creation and access to information; local integration of small firms; institutional support and institutional thickness; human capital; power of large corporations; market accessibility; and local sectoral specialization; and critiques the Taylor Plummer model. In addressing these issues, the chapter provides a necessary backdrop to the remainder of the study to understand

the dynamics of local and regional economic development in the context of the emerging market economy of Turkey.

3.2 Understanding Regional Development

A fundamental aspect in regional development is to understand the dynamic of local and regional economies in a rapidly changing global economy. The importance of this concern has been intensified after the 1980s with neo-liberalism and the primacy of markets that has pervaded economic thinking and policy making. According to Krugman, the pervasive features of contemporary industrial relations cannot be explained by perfect competition and constant returns to factors of production that underpin the Ricardian notion of comparative advantage of territories but by the specialization driven by economies of scale and increasing returns (Martin and Sunley, 1996, p. 263). Economies are not always at equilibrium or moving towards it anymore. National and international collaborations become a part of the development.

In the wake of apparent failures of market ‘perfections’ of classical theory (Smith, 1776; Malthus, 1798; Ricardo, 1817; Mill, 1848), new theoretical assumptions have been introduced (see Figure 3.1 and Figure 3.2⁶¹). Keynesian economics stated that active government intervention in the market and the monetary policy was the best way of ensuring economic growth and stability. The state was seen as the central player in the economic development of the peripheral areas as well as central areas. Development economics emerged to refer to the distinct structural problems of Third;

⁶¹ Figures are constructed based on Prof Ayda Eraydin’s Lecture Notes

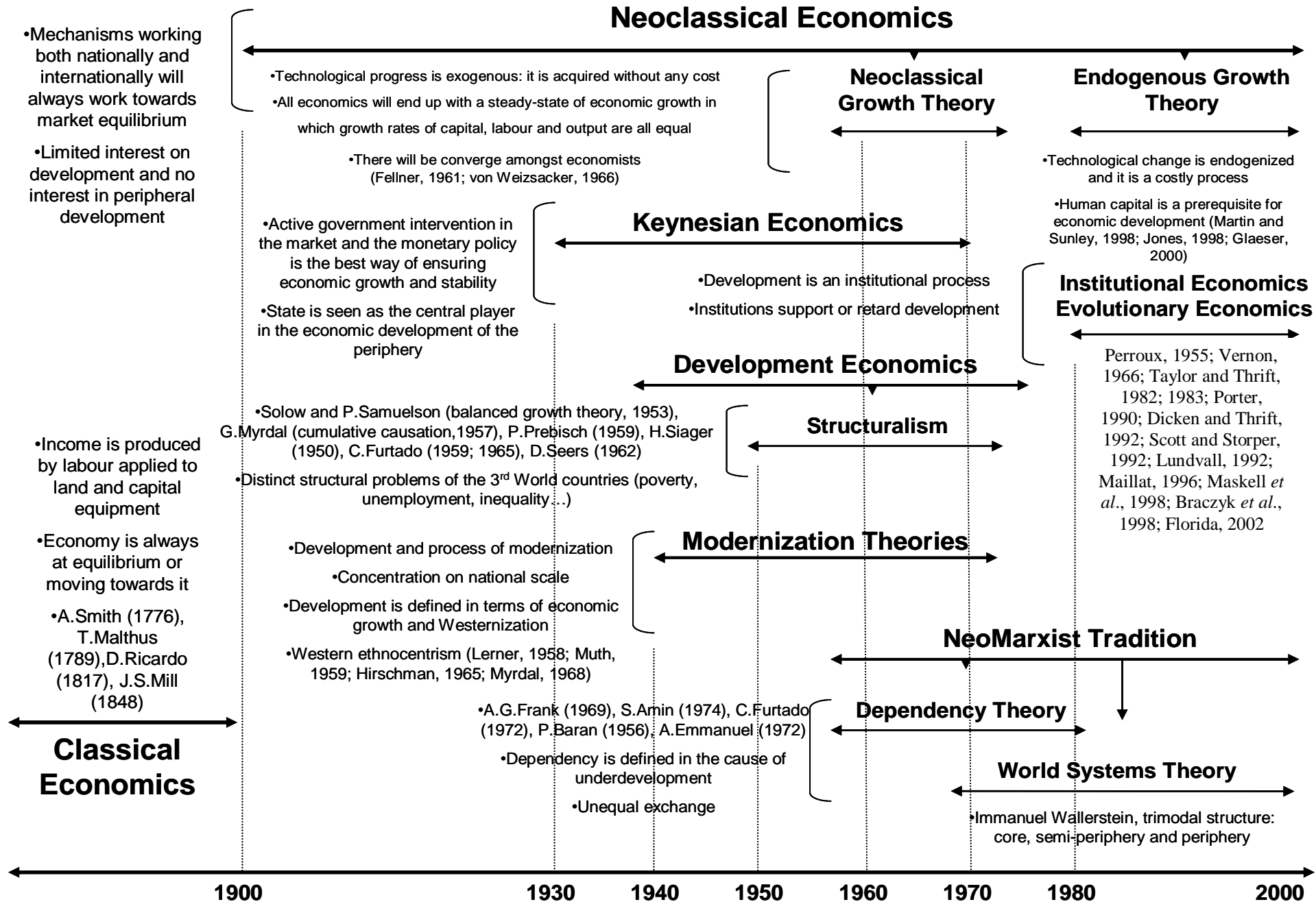


Figure 3.1: Evolution of economic theories-1

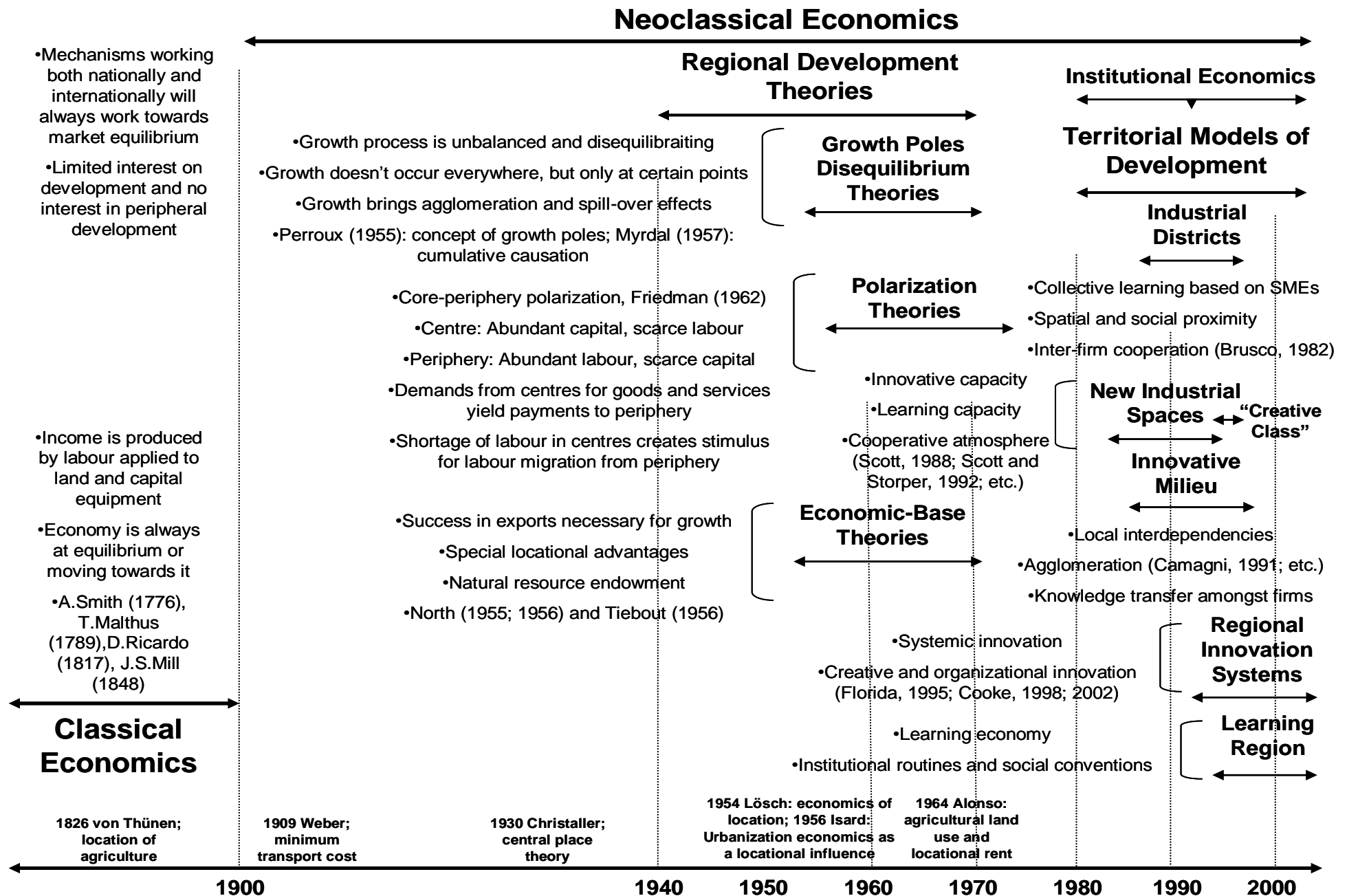


Figure 3.2: Evolution of economic theories-2

World Countries (Siager, 1950; Solow and Samuelson, 1953; Myrdal, 1957; Prebisch, 1959; Furtado, 1959; 1965; Seers, 1962). Modernization theories defined development in terms of economic growth and Westernization (Lerner, 1958; Muth, 1959; Hirschman, 1965; Myrdal, 1968). While neo-classical growth theory approached economics positively with a steady state of economic growth in which growth rates of capital, labour and output were all equal (Fellner, 1961; von Weizsacker, 1965), neo-Marxist tradition referred unequal exchange and dependency as a cause of underdevelopment (Baran, 1956; Frank, 1969; Emmanuel, 1972; Furtado, 1972; Amin, 1974). With the emergence of endogenous growth theory, technological change and human capital became prerequisite for economic development (Martin and Sunley, 1998; Jones, 1998; Glaeser, 2000). As opposed to endogenous growth theory, institutional economics highlighted the importance of institutions in the development process (MacKinnon, *et al.*, 2002; Braczyk, *et al.*, 1998; Porter, 1998; Storper, 1997; Florida, 2002). To sum up, neo-classical economics has portrayed the ‘imperfections’ within markets and the performance of uneven spatial patterns in capitalism.

The era of neo-classical economics also witnessed the emergence of regional and territorial development theories (Perroux, 1955; Vernon, 1966; Taylor and Thrift, 1982; 1983; Porter, 1990; Dicken and Thrift, 1992; Scott and Storper, 1992; Lundvall, 1992; Maillat, 1996; Maskell *et al.*, 1998; Braczyk *et al.*, 1998; Florida, 2002). The growth process was explained as ‘unbalanced’ and ‘disequilibrating’ in growth pole theories (Perroux, 1955; Myrdal, 1957). Growth was expected to occur only at certain points and bring agglomeration and spill over effects (Friedman, 1962). Polarization

theories highlighted core and periphery differentiation (Lloyd and Dicken, 1972). The centre was commended to be the place of abundant capital and scarce labour, while the periphery was the location of abundant labour and scarce capital. Labour immigration from the periphery was explained by the shortage of labour in centres. Economic base theories highlighted the importance of export processes for growth location and natural resource endowment were crucial elements of those theories (North, 1955; 1956; Tiebout; 1956). In this era, scale was also one of the main issues in those development theories. While some theories preferred to refer to regions, some preferred to use territory. Amongst the territorial modes of development, industrial districts were the first ones that emerged (Brusco and Sabel, 1981; Brusco, 1982). They were based on the idea of collective learning and SMEs. Spatial proximity as well as inter firm cooperation was at the heart of those theories. New industrial spaces were another territorial model of development based on innovative, learning capacity and cooperative atmosphere (Scott, 1988; Scott and Storper, 1992; Lundvall, 1992; Maskell *et al.*, 1998; Braczyk *et al.*, 1998). While the concept of an innovative milieu reflected local interdependencies, agglomeration and knowledge transfer amongst firms (Camagni; 1991; 1995; Maillat, 1996), the creative class highlighted the importance of creative industries (Florida, 2002). Regional innovation systems (Florida, 1995; Cooke, 1998; 2002) which emphasised systematic innovation as well as creative and organizational innovation and the learning region which reflected the learning economy as in institutional routines and social conventions were also other territorial development models that emerged under neo-classical economics.

Throughout the development of those economic theories, the main emphasis on

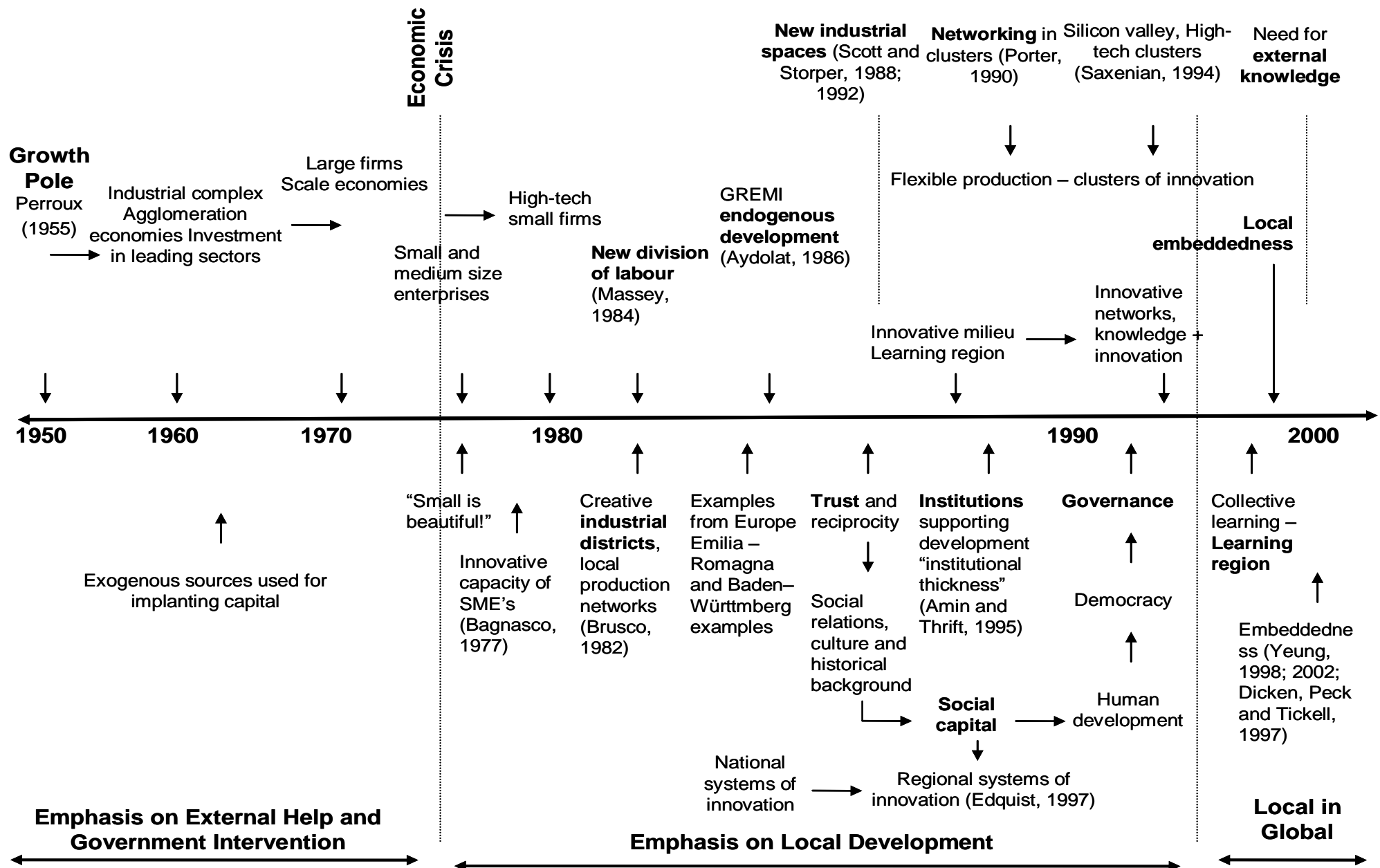


Figure 3.3: Evolution of economic theories-3

intervention shifted (Figure 3.3⁶²). Until the 1970s economic crisis, exogenous resources were used for implementing capital. The focus was on external help and government intervention. Perroux' growth pole idea (Perroux, 1955) was highly influential and policies were formulated to create and support industrial complexes, agglomeration economies and large firms. Investments were oriented to the leading sectors in the regions. After the first economic crisis, some places became more successful than others and this got the attention of social scientists and economic geographers. The emphasis was shifted towards local development and SMEs were located at the centre of local development. The innovative capacity of SMEs and industrial districts were included into policy agendas as one way to boost local economic development. The concept of a spatial division of labour was introduced by Massey (1984) which involved the concentration of particular sectors and tasks in specific geographical areas. During this period, the innovative capacity of SMEs was realized (Bagnasco, 1977). Some success stories emerged from Europe to emphasize the dynamics and importance of endogenous development (Brusco, 1982; Aydolat, 1986). Some defined success in those areas by trust and reciprocity and studied social relations, culture and historical background by referring to the importance of social capital (Camagni; 1991; 1995; Maillat, 1996). So the economy was considered as not a collection of firms and individuals with rational preferences but a composition of social, cultural and institutional aspects because economic behaviours are driven by a varied and path-dependent entity moulded by social, cultural and institutional influences (Amin, 1999). The term social capital was considered as important for national and regional innovations systems. During this period, institutions were used

⁶² Figure is constructed based on Prof Ayda Eraydin's Lecture Notes

and it was believed that they either enhanced or retarded local economic development (Amin and Thrift, 1995a; 1995b). However, not all the regions were successful and contributed to the regional and national economy. Some regions started to lag behind the national economy due to a lack of human capital or insufficient infrastructure. Policies were judged as they were initiated centrally without considering the dynamics of a region and locality. In that sense, the studies that emerged aimed to increase participation and governance. While some regions were struggling to facilitate development, some were able to sustain their comparative advantage. Studies explained the success of those regions by their flexible production systems, learning capacity, innovation potential and networking ability (Scott, 1988; Scott and Storper, 1992; Lundvall, 1992; Saxenian, 1994; Maskell *et al.*, 1998; Braczyk *et al.*, 1998; Florida, 2002). Recent debates accepted the importance of localities but they also wanted to understand how regions could maintain their success in the globalization process (Dicken, Peck and Tickell, 1997; Yeung, 1998; 2002). External knowledge was considered as one way to facilitate the learning process of regions and local embeddedness was discussed in the global context.

3.3 Theorizing Process

A fundamental question that confronts all politicians, policy makers, academics, researchers and practitioners in the regional development field is: how do you plan and develop policies that are relevant to the regions, localities and places in which they are to be applied? This task is increasingly problematic in the face of rapid global economic change. To start with, it is important to recognise that economic processes

are difficult, if not impossible, to measure. Economic data only portray outcomes – what has happened in the past – and act only as a signpost towards what might happen in the future. Even though economic forecasting uses indicators such as inflation and interest rates, GDP growth/decline and unemployment rates to predict the future, the financial and economic crisis affect the forecasting process by making these indicators unstable and unpredictable. Therefore, it is only through theory that processes can be conjectured, making theory central to the formulation of policies to generate local economic growth (Taylor and Ersoy, 2011). As such, regional economic policies are only as good as the theories that are used in their formulation that are relevant to the regions being targeted.

What is only too clear at present is that there is no shortage of theories that specify the processes shaping regional economies. What is just as unclear is which of these theories has any empirical and practical relevance in developing regional economic policies for a country like Turkey. However, it is possible that they maybe appropriate in some form of combination. The general model on which the current modelling framework is built enables the researcher to understand what forms of combination would be suitable for Turkey.

Currently, there are two sets of theories on local economic growth, all of which have been developed in developed country contexts, though they have been applied far more widely (Taylor and Ersoy, 2011). These two sets of theories are:

- (1) the endogenous growth theory of the economists' (sometimes referred to as the 'new economic geography'), and
- (2) the institutionalist theories (the new regionalism and embeddedness ideas) of economic geographers, economic sociology and other similar social sciences.

On the one hand, endogenous regional growth theory seeks to explain growth in terms of a set of 'stylized facts' using abstract mathematical reasoning. Firms are seen as rational, profit-seeking maximisers, and it is assumed that reality can be understood through the use of equilibrium-based models (Plummer and Sheppard, 2006). At the heart of the approach is 'endogenous' technological change (including 'social capital' and 'human capital') built on processes of learning-by-doing, knowledge spill-over, and Schumpeterian 'creative destruction' as entrepreneurs invest in knowledge and innovation (see Martin and Sunley, 1998; Jones, 1998).

The models are abstract and difficult to test. However, much of the testing and analysis attempted in this field emphasises 5 'stylized facts' as determinants of regional economic change:

1. technological change and innovation;
2. human capital, embracing research and education;
3. agglomeration and externalities;
4. knowledge spillovers, including entrepreneurship and new firm formation; and
5. sectoral specialization and/or diversification (see Glaeser, 2000).

These ‘stylized facts’ are difficult to measure, and many proxy variables have been used in studies to date (see Durlauf et al., 2004). However, though these proxy variables might fit, they are, nevertheless, difficult to interpret in a meaningful way in terms of the economic reasoning underlying endogenous growth theory. This is especially true when variable selection is driven by data availability rather than theoretical fit (Durlauf and Quah, 1999).

The lack of reality that limits the usefulness of endogenous growth theory has been highlighted in both the theoretical and empirical research in geography which shows many of the theorised relationships to be simplistic and under-theorised. For example, in endogenous regional theory agglomeration is assumed uncritically to be a source of external economies of scale that reduce transaction costs when there is empirical evidence that agglomeration offers *not cheaper production*, even in transaction cost terms, but *simply easier production* in purely behavioural terms (Taylor, 1975). Similarly, the presence of knowledge in a place is assumed to lead without problem to spillover from one firm to another. No transmission mechanism is conceptualised while even casual empiricism would suggest that contract law, the legal protection of IPR, and firms’ use of inimitability strategies all seek to constrain knowledge spillover. Indeed, these restrictions on knowledge flows have been theorised in the ‘inimitability’ version of the competencies theory of the firm.

It can be contended that the ‘stylised facts’ of endogenous regional growth theory need to be unpacked, especially the mechanisms that diffuse the growth impetus of technological change through a regional economic system (Clark, 1998). They present

a very limited perspective on the “messy” contingency of the lived economy of places. Outside economics, built on Granovetter’s (1985) concept of embeddedness, a range of institutionalist theories of local economic growth have developed that move beyond the anonymity of pure market mechanisms to emphasise economic life and commercial transactions built on social interconnections. These theories combine to create ‘new regionalist’ thinking.

On the other hand, the concept of embeddedness, that emphasises the role of social relations in economic transactions, has given rise to a powerful model of local economic growth that draws on a range of complementary literatures on ‘new industrial spaces’, ‘learning regions’, ‘innovative milieu’ and ‘regional innovation systems’, ‘clusters’, and the ‘creative class’ (e.g. MacKinnon, et al., 2002; Braczyk, et al., 1998; Porter, 1998; Storper, 1997; Florida, 2002). Together, these sets of ideas have been labelled as “new regionalism” (Rainnie and Grobbelaar, 2005). They share the basic ideas that market conditions are not the sole determinant of differential regional economic growth. Instead, local economic growth is driven by proximity, repeated inter-firm interaction and knowledge exchange, collaborative long-term buyer-supplier relationships, the creation of social capital (including trust, reciprocity and loyalty), and a supportive tissue of local institutional thickness (see Putnam, 1993; Malmberg and Maskell, 2006; Cumbers, et al., 2003; Keeble and Nachum, 2002).

What has been created is a series of explanatory frameworks building on ideas of:

1. flexible-production, flexible-specialisation (Scott and Storper, 1992);
2. clusters and competitive advantage (Porter, 1998);
3. embeddedness model (industrial districts, learning regions, innovative milieu) (Maskell et al, 1998);
4. enterprise segmentation (Taylor & Thrift, 1982, 1983); and
5. the creative class (Florida, 2002).

With their emphases on technological change, innovation, enterprise and proximity, they build on the conceptual foundations laid in the earlier theories on growth poles and growth centres (Perroux, 1955; Boudeville, 1966) and product-cycles (Vernon, 1966).

The new regionalism ideas are broad and popular as platforms on which to build regional development policies though they have significant limitations that constrain their explanatory usefulness (see Taylor, 2005). They do not measure economic growth or decline, but simply recognise 'success', and use the idea tautologically to identify 'successful places' from which to draw qualitative inferences on 'success'. Proximity is fetishised as a vital and central element of enterprise generation and the exchange of information, ignoring the inimitability strategies of firms, especially those involved in the development of new technologies. Time is incorporated only implicitly into these frameworks, and the networks within which firms are embedded are seen as more important than the firms themselves (for example, see Yeung, 2005). Quite unrealistically, new knowledge is assumed to translate unproblematically into new business ventures, and the unequal power relations between firms together with

the brutality of the capitalist profit imperative remain largely unrecognised and left outside the scope of theorising (Christopherson and Clark, 2007). What is more, the whole issue of financing and the supply of funds in regional economies is entirely neglected.

The institutionalist ideas of new regionalism offer, therefore, a different but equally limited caricature of regional economic processes to that offered by endogenous growth theory. This section explores the characteristic features of the institutionalist ideas that are based on growth poles (Perroux, 1955), product cycles (Vernon, 1966), flexible specialization (Scott and Storper, 1992), learning regions (Braczyk *et al.*, 1998; Lundvall, 1992; Maillat, 1996; Maskell *et al.*, 1998), competitive advantage (Porter, 1990); enterprise segmentation models (Taylor and Thrift, 1982, 1983; Dicken and Thrift, 1992); and creative class (Florida, 2002) in turn.

3.3.1 Growth Poles

One of the fundamental aspects of the analyses and practices of regional economic planning has been based on growth pole theory. Starting from Perroux (1955), who viewed growth within a grouping of industries around a central core of other industries, the theory, as well as a strategy, has been considered in many different ways. Perroux defines his theory as,

“.. the growth pole is a set that has the capacity to induce growth of another set; the pole of development is a set that has the capacity to endanger a

dialectic of economic and social structures whose effect is to increase the complexity of the whole and expand its multidimensional return” (Perroux, 1988a, p.49)

Perroux believed that this ‘pole of development’ had various influencing effects on economic and social structures. Perroux used his theory to bring ‘growth’ over a long period. He explained success as the increase in the size of a unit (usually a country) and that increase was expressed in terms of its gross national product (the total of goods and services produced within a given period, allowing for depreciation) in relation to the number of inhabitants (1983, p.26). Perroux also defined “development” as dealings between people in the form of exchanges of goods and services and of information (1983, pp.32-33). In the economic context, he stated that development could be achieved at three levels:

- 1) by linking up the parts such as branches, industries and enterprises each of which has its relative importance and its place in specific networks;
- 2) by direct and indirect action and interaction of the various sectors;
- 3) by all forms of human resources as they stand some chance of gaining in effectiveness and in quality.

Although by using the word ‘industries’, Perroux’s primary focus was on ‘large economic units’ (Perroux, 1950, p.103), he also used the term ‘economic space’ as a

territorial entity which drew attention to the reinforcing influences of spatial concentration, the effects on interregional disparities and the impact of the growth pole on its environment (Perroux, 1955). According to Perroux, *“the profit of a firm is a function of its output, of its inputs, and of the output and input of another firm”* (1955, p.96). By saying this, although it is not explicit, he referred to the agglomeration economies of firms and industries. He defined those industries as “l’industrie motrice” (the propulsive industry) which linked between domination and the growth pole. Boudeville (1966) transferred Perroux’s concept of economic space to the geographic domain. According to him, a growth pole is a large city consisting of a propulsive industry and an industrial complex with adjoining territory. Myrdal (1957) and Hirschman (1958) constructed theories of unbalanced growth with more geographic implications. While Myrdal (1957) viewed unbalanced regional growth as a result of early development, Hirschman (1958) considered regional development as a process of interaction between industries via input-output relations.

The propulsive industries that drive this dynamic concept were seen as having distinctive characteristics and developmental effects involving (Plummer and Taylor, 2001a): (1) a high degree of concentration; (2) high income elasticity of demand for their products; (3) strong multiplier and polarization effects through input linkages; (4) an advanced level of technology and managerial expertise promoting local diffusion through demonstration effects; (5) promotion of a highly developed local infrastructure and service provision; and (6) the dynamism through the zone of influence.

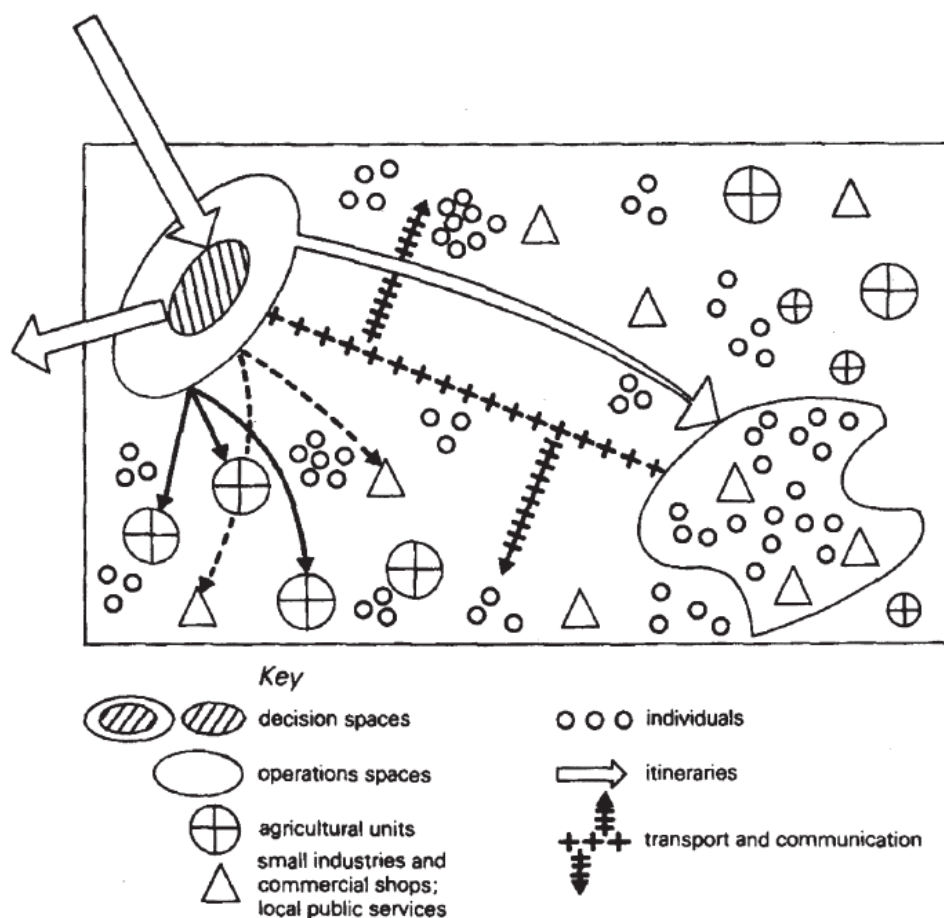


Figure 3.4 Diagram of channels for “Territory T” (Perroux, 1988, p.62)

With the help of the growth pole theory, strategy became the main concern, focusing investment on a limited number of locations in an attempt to encourage economic activity and thereby raising levels of welfare within a region (Parr, 1999). Perroux developed the regional application of his ideas by showing the territorial effects of a multinational firm in a developing country (Perroux, 1988). According to him, within a particular territorial space (“T” of the firm), there is an “operational space” or “decision space” and the interactions between the multinational and the smaller units are called “itineraries” or “channels” (Perroux, 1988, p.62, see Figure 3.4).

Parr (1999) explained this diagram in two different ways: A development which would mainly benefit the big firm (which has extensive and intensive relations) and the agglomerated area or a development which could benefit the whole population. Therefore local growth in this model was dependent on *large firms, knowledge creation and transfer* through such “channels” and *new technology and high tech industries*. For developing countries, Perroux (1988, pp. 41-42) suggested his model offered long term growth opportunities as long as:

- a) it raised the standards of individuals and groups as regards living conditions, culture and the forging of political will (condition for social advancement);
- b) it slanted economic and social structures in the direction of the optimum general structure for promoting the personal development of the individual members of the community (condition for good structuration);
- c) it encouraged the dissemination of the benefits of innovation and investment, scientific knowledge and artistic creativity as rapidly as possible throughout the entire population.

The strategy and theory of growth pole has been used in Turkish policy to facilitate the cumulative nature of the growth process and develop lagging regions in the country. When the “planned development period” of Turkey started with the 1st FYDP (1963-1967), the policy was used to support large economic units in the country. Following the first one, the 2nd FYDP (1968-1972) also aimed to provide and improve

infrastructure for the regions via allocation of income and public services, as well as encouraging investments in less developed regions⁶³. Both Plans aimed at creating ‘growth poles’ in various regions to develop firms and industries in the regions. Infrastructure and investments were concentrated on those regions as an attempt to encourage economic activities (DPT, 1963; 1968).

Region	Provinces
East Anatolia Region	Malatya, Elazig, Erzurum, Van, Kars
Southeastern Anatolia Region	Gaziantep, Diyarbakir, Sanliurfa, Batman
Black Sea Region	Samsun, Trabzon, Kastamonu
Middle Anatolia Region	Kayseri, Sivas
Mediterranean Region	Kahramanmaras

Table 3.1: Growth Centres (Provinces) in Turkey (Source: DPT, 2007, p.39)

Although the policy idea of growth pole has been dismantled partly because of its complexity and the changing role of the state after the 1980s, some ideas have alluded to the growth pole policy in the following years. With the 9th FYDP (2007-2013), the concept of ‘attraction centres’ was proposed in the Plan⁶⁴. The idea was to identify centres⁶⁵ that have the potential to grow and provide services to their hinterlands; and then develop their accessibility, physical and social infrastructure. Following the 9th FYDP, the policy idea of attraction centres is also mentioned in other policy

⁶³ For the detailed information, see “Bolgesel Gelisme Ozel Ihtisas Komisyonu Raporu”, Sekizinci Bes Yillik Kalkinma Planı, DPT, Nisan 2000.

⁶⁴ The 9th FYDP (DPT, 2006, p. 92).

⁶⁵ The provinces are: Diyarbakir, Sanliurfa, Elazig, Malatya, Kayseri, Sivas, Erzurum, Gaziantep, Konya, Samsun, Trabzon and Van.

documents⁶⁶. The policy idea of attraction centres is also used to channel the spatial distribution of EU funds in Turkey in the 9th FYDP. Fifteen provinces (Table 3.1) are identified to allocate the spatial distribution of EU funds (see DPT, 2007, p.39).

3.3.2 The Product Cycle

Since its introduction (Vernon, 1966; Hirsch, 1967) into economic geography, the product-cycle theory has had a significant impact on studies of industrial location, international investment, international trade and agglomeration in innovation. The basic premise of the theory was to underpin research on technological change and to explain firm growth and the formation of new firms and high-technology firms. According to Vernon:

“.. the enterprises in any one of the advanced counties of the world are not distinguishably different from those in any other advanced country, in terms of their access to scientific knowledge and their capacity to comprehend scientific principles...” (Vernon, 1966, p. 191).

In his theory, Vernon emphasized that all enterprises in advanced countries could equally access knowledge but this did not mean that the application of knowledge in the process of generating new products was equal. For him, there was a large gap

⁶⁶ 2007, 2008, 2009, 2010 State Planning Institute Institutional Financial Condition and Expectation Reports, the 60th Government Action Plan (10.01.2008), GAP Action Plan (2008-2012), 2008-2010 Preparation of Capital Investment Plan, 2007-2013 State Planning Institute Strategic Cohesion Framework, 2007-2009 Medium Term Program

between the knowledge of a scientific principle and the embodiments of the principle in a marketable product. Thus,

“if all entrepreneurs, wherever located, could be presumed to be equally conscious of and equally responsible to all entrepreneurial opportunities, wherever, they arose, the classical view of the dominant role of price in resource allocation might be highly relevant” (Vernon, 1966, p. 15).

In other words, Vernon’s emphasis was less on ‘cost doctrine’ and more on the timing of innovation and knowledge in the decision to trade or invest. The basic premise in the theory evolved through three distinct stages in its life cycles: an innovation stage, during which a ‘new product’ was manufactured in the home region and introduced into new market areas by means of exports; a growth stage during which foreign demand expanded to a point where *foreign direct investment* became feasible and process technology could be transferred; and a standardisation phase, during which production may shift to low-cost locations (Vernon, 1966).

In the first stage, *the creation and introduction of those new products, flexibility in the sourcing of inputs, communication with suppliers and customers, and an affluent market condition* were considered as very important elements. Therefore, the metropolitan centres of advanced countries such as the United States of America were the best places for this innovation stage. As the marketing of a new product began, firms require *skilled labour*, such as scientists, engineers, for refinements and improvements (Malecki, 1997) and these activities were considered to be taken from

central locations. In the second stage, when the need for flexibility in input sourcing was satisfied, economies of scale became available and this created the concerns of the cost of production in the final stage. By the time the price competition started, the potential for low-cost supply drew manufacturers to less developed countries. In contrast to the first stage, the second or the third stages was characterised by shifts of production to low-cost and especially low-wage locations (Abernathy and Utterback, 1978).

Figure 3.5 represents the three stages under the product cycle model. One of the problems with this graph and with Vernon's approach occur in the maturing process of the product when less developed countries offer competitive advantages as production locations. Unfortunately, knowledge is not regarded as a free good and it comes with costs and without considering the marketing considerations, it would be risky for entrepreneurs to make an investment in less developed countries. However, the theory is still crucial as it differentiates the development stages of a product. Cantwell (1995, p.156) provided three justifications for the importance of the product cycle model. First, he referred to economies of scale in the R&D function and

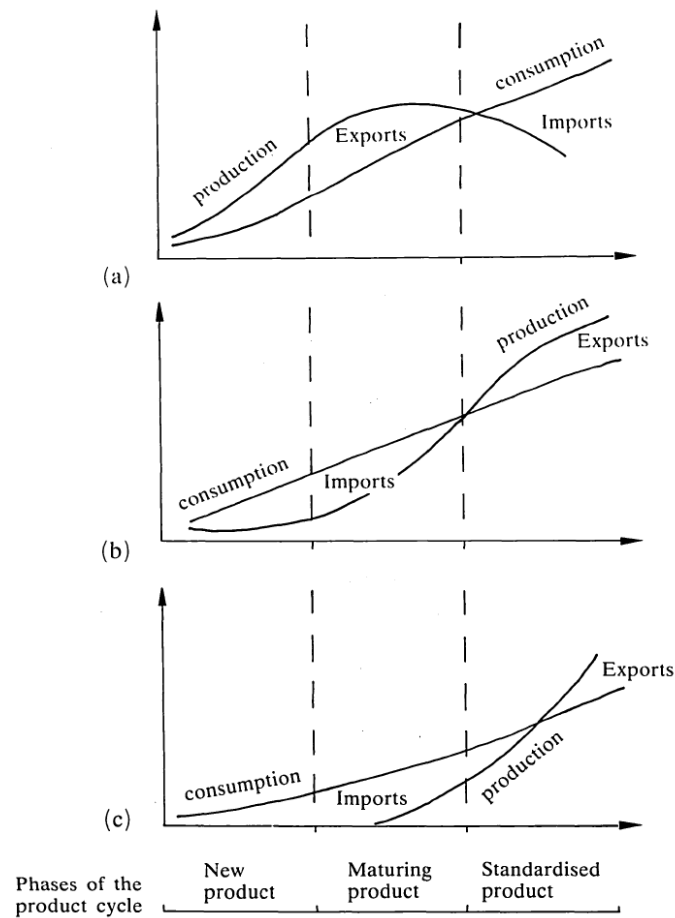


Figure 3.5: The product cycle model (a) United States of America; (b) other advanced countries; (c) less developed countries (Vernon, 1966, p.195)

stated that if those functions were strong enough, they would be concentrated in a single centre. Second, he stated that since a close interaction would be required between research and production facilities and users in the process of product development, locational economies of integration and agglomeration in innovation would be inevitable. Finally, he explained that since the product cycle model viewed innovation as a 'demand-led process', this would give opportunity to US MNCs to be located in the more conducive environment of their home country, stimulated by the

particular characteristics of the demand of high income consumers and skill-intensive downstream production facilities. Malecki (1997) also identified several advantages of the product cycle model. According to him, the model:

- emphasises labour as well as the capital needs of firms related to products at different phases;
- emphasise the ebb and flow of innovative activity observed in many industries;
- is directly related to potential locations of economic activity which vary with the type of activity undertaken.

Although the model was not universally applicable, it captures the skill and knowledge differences between economic activities and the type of products. Today, this model is widely used in the field of R&D as *invention and innovation* determine the location of new industry through expenditure in R&D. New growth can be attracted to an area by creating the physical conditions of existing areas of high-technology industry, the establishment and promotion of technology parks and high technology industry (Malecki, 1984). However, although the home country is generally the most important site for corporate technological development, innovation in the leading MNCs has become 'globalised' rather than being in a particular location (Cantwell, 1995). Therefore, locational agglomeration occurs in many centres. Moreover, considering the big metropolitan areas as the main centres, there are no

locational advantages for the supply of inputs. It is also implicit within the model that inventions were created in their final form and product differentiation that companies and corporations seek was underestimated. The product cycle model is a simple and straightforward explanation of spatial development in the face of *technological change* (Taylor, 1986).

Today, this change has been accommodated widely in technology oriented business incubators since the business incubation idea occurred in the 1980s. The definition of technology oriented business incubators is explained by Tamasy (2007) as:

“...a property-based initiative assisting technology oriented businesses to become established and profitable during their start up phase... the incubation period of an individual business lasts normally up to five years” (Tamasy, 2007, p.462)

The role of these incubators is to provide a supportive environment to transform science into commercial products. Phillips (2002) argues that technology business incubators merge the concept of fostering new businesses with concepts of the commercialization and transfer from universities to the regional business community. However, more empirical studies need to be done to evaluate the ‘effectiveness’ (see Bearse, 1998; Tamasy, 2007) of these technology oriented incubators.

In Turkey, technology has a crucial role in formulating and encouraging development (Table 3.2). After the 7th FYDP (1996-2000), regional development

Policy Document	Incentives
<p>06.07.2001 Technology Development Zones Law No. 4691</p>	<p>Exemption from income or corporation taxes; exemption of high-tech products from VAT taxes; exemption of companies (incorporated as joint stock companies under Law No. 4691) from all taxes, duties and charges in the transactions concerning the implementation of the Law; deduction of wastewater costs to zones operating a wastewater purification facility; provision of financial support for those who seek a contribution to the expense of procuring the land for the establishment of the zone, the infrastructure expenses and the expenses to construct an administrative building 'which cannot be met by the Managing Companies'</p>
<p>07.03.2007 SAN-TEZ Program, Official Gazette No. 26573</p>	<p>75% of project cost is supported by the Republic of Turkey Ministry of Industry and Trade and 25% of project cost is supported by the participant industries</p>

12.03.2008	Redemption of expenditures of R&D and innovation projects as
Supporting	well as provision of financial incentives for those who cannot
Research and	benefit from this allowance due to inadequate earning in the
Development	relevant accounting period; provision of income tax withholding
Activities	incentives for those (except public sector personnel) working in the
Law No.	technology or related centres (exemption of income tax is 90% for
5746	those having a PhD degree and 80% for the others); supporting the
	insurance premium of half share of the employer; stamp duty
	exemption; ‘Technopreneurship Capital Subsidy’ provision up to
	100.000 Turkish Liras;

Table 3.2: Government incentives for technology oriented projects in Turkey

policies started to become more focused. For the first time in the planning period, industries were intended to be differentiated across the nation depending on the characteristics of the regions. Organized Industrial Zones (OIZs) Law 4562⁶⁷ came into force to support the foundation and administrative process of the OIZs. Supporting Research and Development (RD) activities and university-industry collaboration were encouraged in more developed regions. Technology became one of the crucial tools in development. Governments started to encourage technology oriented projects in Turkey by providing various incentives. Technology Development Zones Law No. 4691 came into force on July 6, 2001 to regulate the support of R&D activities as sources of innovations in production. In 2007, SAN-TEZ

⁶⁷ The Law was published in Official Gazette No: 24021 on 15.04.2000

Program was proposed by the government to increase the collaboration between industries and government. In 2008, Supporting Research and Development Activities Law came into force by providing various exemption and incentives for those who were willing to undertake technology oriented projects in Turkey. However, all these programs are funded by the Turkish government and this raises the question of whether these programs would provide any stimulus for individuals starting a business. Empirical analysis undertaken outside Turkey show that there is no relationship between the opening of technology related industries and employment growth rates of firms (Shearmur and Doloreux, 2000; Siegel et al., 2003). Therefore, there is an urgent need for studies to be undertaken in the Turkish context to explore the impact of these technology oriented programs.

3.3.3 Flexible Production and Specialisation

During the Keynesian Economics period between the 1930s and 1970s, issues such as internal economies of scale based on process flow and assembly line methods, the technical division of labour and standardization of output were introduced and they functioned effectively in mass production forms of industry characteristic of Fordism (Lipietz, 1982; 1985; 1986). However, the saturation of domestic mass markets started to impose severe limits on economic expansion by the early 1970s. Increasing internationalisation of production systems, unstable exchange rates and raw material prices, the fragmentation of the demand for manufactured products, restrictive macroeconomic policies and the growth of protectionism, the persistent volatility of international markets and the oil shocks of 1970s pushed Keynesian Economics in a

deepening stage of stagflation which resulted in a relative decline of Fordist mass production and an expansion of activities based on less rigid and more adaptable structures (Piore and Sabel, 1984; Tolliday and Zeitlin, 1987; Scott 1988; Murray, 1987; Storper, 1989; Hirst and Zeitlin, 1989). This transition period has raised the sectoral agglomeration of small firms (such as in Italy, West Germany and Japan) by introducing a new paradigm of industrialisation, which was called flexible specialisation (Piore and Sabel, 1984).

The main empirical base for this theoretical development is drawn from the changes to small firms of the Emilia-Romagna region, which forms part of 'Third Italy' (see Brusco, 1982; Brusco and Sabel, 1981). Capecchi (1989) studied the industrial shift and development in that region and identified three different periods. While the first period, 1901-51, was characterized by the prevalence of agricultural activities, the second period, 1951-71, was characterized by the development of flexible specialized industrialisation based on small metallurgical, mechanical, and the textile enterprisers. The third period, 1971-81, was characterized by the expansion of the service sector and by technological change, which brought the new information and electronic technologies into the region. Piore and Sabel (1983) also studied the Italian case and showed how small firms responded to the strike waves of the 1960s with decentralisation:

“These little shops range across the entire spectrum of the modern industrial structure, from shoes, ceramics, textiles and garments on one side to motor cycles, agricultural equipment, automotive parts, and machine tools on the

other. The firms perform an enormous variety of the operations associated with mass production, excluding only the kind of final assembly involved in the automobile production line. The average size of the unit varies from industry to industry, but it is generally extremely small: shops of ten workers or less are not unusual” (Piore and Sabel 1983:392-3).

They explained that once the sweat shop sector started to develop and compete with their basic technologies, they became innovative and developed into a growing network of small firms by adapting traditional and computer based technologies to respond to the changing demands of the market.

There have been different interpretations of the concept ‘flexible specialisation’ by scholars. Sabel (1982) defined it as a new face of capitalist production characterised by craft labour, small-scale industry using the latest technology and diversified world markets and consumer tastes. So flexible specialisation allowed firms to more finely differentiate or tailor their products according to subtle nuances of taste or need variation in the marketplace based on knowledge creation. Piore and Sabel (1984, p. 17) defined flexible specialisation as “*a strategy of permanent innovation: accommodation to ceaseless change, rather than an effort to control it*”. According to them, the new strategy was based on “*...flexible (multi-use) equipment, skilled workers, and the creation, through politics, of an industrial community that restricts the forms of competition to those favouring innovation*”. They explained this new strategy by highlighting the troubles faced by the mass production economy in the

United States and by showing the emerging economies which favour flexible specialisation.

To illustrate that, they referred to the nineteenth century industrial districts such as Lyon, Saint-Etienne, Solingen, Remscheid, Sheffield, Alsace, Roubaix, Philadelphia and Pawtucket. The small firms in these districts were developed or exploited new technologies without becoming larger and large firms using sophisticated technology did not produce standardised goods. This meant that the technological dynamism of small and large firms was not related to the traditional or subordinate form of economic activity of craft production but to the model of technological advance. The characteristics of such industrial districts varied according to:

- 1) the wide range of products for the highly *differentiated markets*;
- 2) the flexible use of increasingly productive and widely applicable *technology*;
and
- 3) *the institutional environment* in which a balanced competition and cooperation are encouraged for the innovation of products and processes.

While Piore and Sabel (1984) considered flexible specialisation as a new 'strategy' in the production process, Scott (1988) referred to this new paradigm in the new dominant regime of accumulation and mode of social regulation by looking at the late 1970s and early 1980s of North America and Western Europe. He stated that "...in

contrast to the Fordist type of production process, the new regime was based on a series of new ensembles of production sectors and therefore, flexibility". He continued by saying that this type of production system created new industrial spaces in the contemporary capitalism such as new craft and design intensive industries producing outputs (i.e. clothing, furniture, jewellery, shoes, textile), various kinds of high tech industries with their input suppliers and subcontractors and last but not least, a rapidly expanding set of business, financial and personal services essential to the efficient economic and social functioning of contemporary capitalism. Therefore flexible production systems represented *new kinds of organizational and labour market structures*.

Storper and Scott (1992, pp. 7-8) explained the organizational structure of the flexible production systems, by contrast with mass production, as it was characterised by *'progressive vertical disintegration of production with numerous producers (of different sizes) caught up in tightly knit network structures'*. In these networks, groups of industrial establishments with especially dense interrelations tended to locate close to one another to facilitate exchanges of goods and information and to take advantage of external economies in labour markets and infrastructure. So the emerging economy of flexible production brought into existence a series of new core production regions which were typically different from those of the mass production system and which could be reorganised in different ways in terms of its location. First of all, craft based, design intensive industries such as clothing, textiles, furniture, jewellery, ceramics, sporting goods, as well as foci of precision metalworking and machine building could be aggregated in two main types of location. They could be located within either inner

city areas of large metropolitan regions such as New York, Paris, Los Angeles and London (with their large immigrant populations) or old centres of craft production such as in Emilia-Romagna and Tuscany in Italy, parts of Rhone-Alps and Mediterranean regions of France and certain parts of southern Germany and Scandinavia (Ganne, Saglio, Courault and Romani). Secondly, high technology industries tended to locate around suburban locations close to major cities and in formerly non-industrialised areas such as Cambridge in the UK, or the French Midi, or especially the US Sunbelt with its major new high technology growth centres in such places as Orange Country, Silicon Valley, Chatsworth-Canoga Park, Dallas-Forth Worth etc. Finally, advanced producer and financial services were located in or close to the central cores of large cities, such as Tokyo, New York, London, or La Defence in Paris (Storper and Scott, 1992).

These changes have affected economic geography in two different ways. First, the region was now considered to be an integrated unit of production (Piore and Sabel, 1984). Sabel (1989) stated this resurgence in five complementary developments. To start with, development was related to the new formation of twentieth century industrial districts. The emergence of those new industrial districts in Italy (the Third Italy), West Germany (Baden-Wurttemberg), Japan (Sakaki), Denmark (Jutland), France (Lyons-Oyonnax) and the United States (Silicon Valley) encouraged the reconsolidation of the regions (Sabel, 1989). Then, multinational firms changed their production lines to concentrate on single operating units with increased responsibility to organise their own sales and subcontracting. After that, large firms created new collaborations with other firms. According to Sabel (1989), these relations could be

either with nearby multinational subcontractors or within one or several areas of flexible specialisation of industrial groups. Fourth, a slow transformation of local government occurred with a shift from welfare dispensaries to job creation agencies. This transformation occurred when new services were imposed by the growing networks of large and small firms (Sabel, 1989). The fifth and last development was related to the transformation of labour. According to Sabel (1989), as trade unions started to cooperate, work forces started to get involved in local strategic decisions and therefore participate in local management.

Secondly, the rise of flexible production organisation posed challenges to interregional trade, local economic specialisation and the broad configuration of the geography of production in the modern world (Storper and Scott, 1992, pp. 9-11). First of all, comparative advantage came in the very process of trade, as opposed to the traditional theory of trade, due to the external economies of industrial agglomeration in regional development. Striking examples of this process were cars in Detroit and aircraft in Los Angeles, where an early start and a series of technological developments hastened the domination of these regions in their particular sectoral specialisations (Storper and Scott, 1992). Secondly, the new paradigm was associated with particular industrial agglomerations. According to Storper and Scott (1992), the theory of the new spatial/international division of labour claimed that many kinds of commodity chains were spread out across the globe. In any one of these agglomerations, semi-manufactured outputs, subassemblies, and other kinds of inputs were made within the local industrial network and were then passed on to plants in other locations and other agglomerations. Finally, there was an increasing tendency

for a large number of 'Third World' workers. They were willing to work in low-paying and unskilled jobs in selected urban regions of the periphery, as in Brazil, Hong Kong, Singapore, South Korea and Taiwan (Storper and Scott, 1992). So the new economic geography was defined in two different ways. On the one hand, the global economy was made up of a set of specialised regional production systems, each with its own dense system of interregional transactional arrangements and local labour market activities. On the other hand, these individual regions were entwined in a world wide web of inter-industrial linkages, investment flows, and population migrations.

In general, flexible specialisation stresses relationships with other firms, public bodies and labour. It encourages cooperation and coordination between firms to become more productive and competitive. It does not emphasise an active industrial policy in a traditional sense but assumes that a wide variety of sectors can be successful components of an advanced economy; varying from high-tech sectors like advanced machine tools or computers to traditional sectors like clothing and furniture (Zeitlin and Totterdill, 1989; Best, 1989). As a model of local economic development, the flexibility model is technologically driven and it hinges on the local integration of firms through the exchange of goods and information (Plummer and Taylor, 2001a). Within the framework, institutional support and the potentialities of the human resource base of the local labour market are the essential characteristics of this theory.

Although flexible specialisation takes its start from advanced capitalist countries, this new paradigm has been appealing in Less Developed Countries (LDCs) as well.

Although it was not clearly stated, Piore and Sabel (1984) referred to LDCs when they speculated about the future:

“... it is conceivable that flexible specialisation and mass production could be combined in a unified international economy. In this system, the old mass-production industries might migrate to the underdeveloped world, leaving behind in the industrialised world the high-tech industries and the traditional dispersed conglomerations in machine tools, garments, textiles, and the like – all revitalised through the fusion of traditional skills and high technology”
(Piore and Sabel, 1984, p. 279).

A later analysis of Schmitz (1990) showed that flexible specialisation was a paradigm of great relevance for industrialisation in LDCs. In the past decade, some successful stories about flexible production and specialisation within ‘industrial districts’ and ‘clusters’ have begun to emerge from developing countries (Eraydin, 1997) such as Latin America (Schmitz, 1995; Storper, 1990); South Korea (Park and Markusen, 1995); Mexico (Rabelotti, 1995, 1997); India (Cawthorne, 1995); Pakistan (Nadvi, 1992); Indonesia (Smyth, 1992) and South Africa (Rogerson, 1994). In Turkey, there are some provinces where traces of flexible production and specialisation can be observed. Those provinces (also known as ‘The Anatolian Tigers’: Gaziantep, Denizli, Çorum, Kayseri and Konya) have displayed a substantial growth after the 1980s (Eraydin, 1998a, 1998b). Amongst those provinces, Çorum is one of the urban nodes in Turkey that has been identified with its high performance of economic growth based on manufacturing and it has a leading position in terms of industrial

development amongst the other less developed regions. It is dominated by resource based firms and new firms are expected to be created around the traditional sectors. Therefore, Çorum utilizes the capacity that has already developed in itself. Cheap prices and high quality in some sectors such as cement and tiling determine the competitive advantage in the city. Çorum's experience is explained by Eraydin (1998a) in Table 3.3.

Factors/Conditions	Main Characteristics of Çorum	Craft Based (Emilian Model) Industrial District	LDC Industrial District
Stages of Evolution	*source-based firms *traditional sectors create spin-off	*high degree of specialization *increasing quality and adaptation to changes	*small firms agglomeration *growth stage: increasing scale of firms; diversification stage: specialization and vertical disintegration
Motivations	*utilize the capacity already developed	*not to obtain advantage transaction costs but to obtain a more secure position in the market	*achieve export oriented production
Factors that determine competitive advantage	*cheap prices and quality in some sectors *local innovativeness	*incremental innovation through informal 'learning by doing' and 'learning by using' primary based on tacit knowledge	*mainly the competitive advantage is based on low cost of production and cheap labour *at later stages more on the quality of products

Table 3.3 Comparison of Çorum with different types of industrial districts

(Source: Adopted after Eraydin, 1998a, pp. 42-44)

Gaziantep's experience in industrialization has also been considered as a model to be adopted by other cities in Turkey (Bayirbag, 2010). Bayirbag (2010) explains the success of Gaziantep in terms of the number of business associations and their engagement in the locality. He claims that scalar strategies of representation are the best instrument for shaping, coordinating and linking newly emerging structures as well as reproducing the capitalist state within the nation state.

On the policy side, flexible production and specialization are also perceived as a mechanism to be successful and policies have attempted to facilitate specialization. In that respect, the concept of 'Specialized Industrial Zones' was introduced with the 5th FYDP in Turkey. This was followed by the establishment of Agricultural Based Industrial Zones in 2008. Today, there are three different kinds of Specialized Industrial Zones: Mixed Industrial Zones (*karma OSB*), Specialized Industrial Zones (*ihhtisas OSB*) and Private Industrial Zones (*özel OSB*) that are structured in organized industrial zones. Mixed industrial zones include various kinds of production facilities of various industries. Private industrial zones are constructed according to Law number 4562, Article 26 for private demands. Special industrial zones include specialized industries. There have been 21 established Specialized Industrial Zones today (Table 3.4).

Number of Specialized Industrial Zones	Number
Agricultural Based Industrial Zones	9
Leather Industrial Zones	5
Marble Industrial Zones	2
Textile Industrial Zones	1
Olive Production Industrial Zones	1
Cast Industrial Zones	1
Informatics Industrial Zones	1
Food Industrial Zones	1
Total	21

Table 3.4 Number of Specialized Industrial Zones

(Source: Turkish Ministry of Industry and Trade, 2011)

The economic contributions of these specialized zones are still yet to be analyzed and explored but, unfortunately, it is hard to assess the quantitative significance of small manufacturing because many producers are not officially registered and escape the industrial census or other statistical surveys (see also Schmitz, 1990). Moreover, small firms can be very rigid and protective in terms of networking and cooperation (Semlinger, 1993). Although venture capital is available to small firms in developing countries, family circles can be more effective than public and non-public institutions (Eraydin 1998a; Saracoglu, 1993). In Turkey, studies on several industrial districts show that small scale enterprises are mainly dependent on their own financial resources or they are supported by their families, relatives and even from other local

entrepreneurs when they need financial help (Eraydin, 1998b). For example, in Denizli, instead of using local production networks or cooperating, firms tried to solve their problems inside their production system (Ozcan, 1995; Erendil, 1998). Also in other industrial districts in Turkey (Gaziantep and Çorum), the growth has been achieved through increasing firm size and vertical integration or through local firms' becoming strongly linked with large local or multinational firms (Eraydin, 1997).

3.3.4 Learning regions and innovative milieu

The rediscovery of competences as determinants of economic performance (Amin and Wilkinson, 1999) has increased the importance of generating and securing knowledge, learning and adapting in regional economies. Especially after the flexible-production, flexible-specialization model, the concepts of 'learning regions' (Asheim, 1997; Lundvall, 1992; Maskell et al, 1998) and 'innovative milieus' (Maillat, 1995; 1996; Maillat and Lecoq, 1992) have changed the direction of economic development to more 'social' and 'cultural' issues such as social consensus, institutional support for local business, innovation, skill formation and the circulation of ideas (Amin and Thrift, 1994; Asheim, 1996). Geography has a particular importance in the process of innovation and learning since these 'social' and 'cultural' issues are localized in specific places.

3.3.4.1 Learning Region

Malmberg and Maskell (1997) stated that learning processes had two implications in geography. First of all, firms and such organisations developed various routines and procedures in order to cope with the uncertain and incremental character of learning processes. Historical background of firms and organizations and their experience became crucial to cope with the problems of the uncertainty. Secondly, proximity was one of the fundamental aspects of the learning process. According to Malmberg and Maskell (1997), when industries were to be attracted to specific places, knowledge tended to become embedded, not only in individual skills and in the routines and procedures of organizations, but in the milieu as such, or rather in the relations that connected different firms to each other and to the wider *institutional context*. That is why the long-term industrial competitiveness was related to the ability of firms to upgrade continuously their knowledge base and performance (Porter, 1990), rather than simply to obtain static efficiency through the identification and exploitation of cheap resources and economics of scale. Therefore, knowledge was a key asset for competing firms and, consequently, learning was a key process.

Asheim and Isaksen (1997) explained that learning processes emerged as a localised and not as a placeless process and thus constituted an important part of the *knowledge base* and infrastructure of firms and regions, which highlighted the importance of historical trajectories. Localised learning was not only based on tacit knowledge but was also constituted by codified knowledge. This referred to ‘disembodied’ knowledge and know-how which were not embodied in machinery, but were the result

of positive externalities of the innovation process, and generally based on a high level of individual skill and experience, collective technical culture and a well developed institutional framework which were highly immobile in geographical terms and thus could represent important context conditions of regional clusters with a potentially favourable impact on their innovativeness and competitiveness. Such ‘disembodied’ knowledge was often constituted by a combination of place-specific experience-based, tacit knowledge and competence, artisan skills and R&D based knowledge.

Similarly, Florida (1995) also stated that the learning process was essential in the regions because learning regions were increasingly important source of innovation and economic growth and they were the vehicles of globalization. According to him, learning regions functioned as collectors and repositories of knowledge and ideas, and provided an underlying environment or infrastructure which facilitated the flow of knowledge, ideas and learning.

Florida (1995) explained the differences between mass production region and learning region on the basis of competitiveness, production systems, manufacturing infrastructure, human infrastructure, physical and communication infrastructure and finally industrial governance systems (Table 3.5). Learning was reflected in various areas and entrepreneurs of different kinds used knowledge to form innovative ideas and projects and some of these find their way into the economy in the form of innovations. The shift from mass production to knowledge based production also created a new understanding of the institutional context of a ‘learning economy’, where socio-cultural structures were not only looked upon as relics of pre-capitalist

	Mass production region	Learning region
Basis of competitiveness	Natural resources, physical labour	Knowledge creation, continuous improvement
Production system	Mass production	Knowledge based production
Manufacturing infrastructure	Arm's length supplier relations	Networks & supplier systems as sources of innovation
Human infrastructure	Low skill/low cost labour, Taylorist work force/education	Knowledge workers, continuous improvement of human resources via education and training
Physical and communication infrastructure	Domestically (locally) oriented physical structure	Globally oriented physical and communication infrastructure, electronic data exchange
Industrial governance system	Command and control regulatory framework	Mutually dependent relationships, network organization, flexible regulatory framework

Table 3.5 From mass production to learning region (Florida, 1995, p.533)

civil societies, but as necessary prerequisites for regions striving to be innovative and competitive in a post-Fordist global economy. Therefore, socio-economic structures represented the contemporary basis for the development of a 'learning economy' (Amin and Thrift, 1995b; Grabher, 1993; Lundvall, 1992).

Lundvall and Johnson (1994) used the concept of a 'learning economy' when referring to the contemporary post-Fordist economy dominated by the *ICT* (information, computer and telecommunications) related techno-economic paradigm. The learning economy was firmly based on "innovation as a crucial means of competition" (Lundvall and Johnson, 1994, p. 26) because in a learning economy, the competitive advantage of firms and regions was based on innovations. Innovation processes were seen as socially and territorially embedded, interactive learning processes (Amin and Thrift, 1995a). Thus, in the perspective of new theories of innovation and endogenous growth, it could be argued that regions dominated by (territorially agglomerated) SMEs could develop a large innovative capacity as a basis for endogenous regional development (Amin and Thrift, 1995b). One of the consequences of the considerably more knowledge-intensive modern economy was that "the production and use of knowledge is at the core of value-added activities, and innovation is at the core of firms' and nations' strategies for growth" (Archibugi and Michie, 1995, p.1). Thus, in a learning economy, technical and organizational changes became increasingly endogenous. Learning processes were institutionalized and feed-back loops for knowledge accumulation were built in so that the economy would be considered 'learning by doing' and 'learning by using' (Lundvall and Johnson, 1994, p. 26).

In relation to 'learning', knowledge creation also became a key process in sustaining or increasing competitiveness (Lundvall, 1992). Lawson and Lorenz (1999) argued that innovation should be understood as a cycle involving interaction between tacit and articulated knowledge. A pre-condition for this process was the building of shared values, norms and technical understanding so that often diverse knowledge could be shared. The second stage was when individuals with diverse and complementary knowledge came together and collectively sought to explain their ideas about a new product or technology. This required the members of the group to articulate early ideas about new developments by clarifying their notions and developing new concepts which were mutually comprehensible within the group. In this way, new knowledge became easier to combine with that of known technologies and methods in the process of building testable prototypes. At the fourth stage the new product or process went into production and, with this, the knowledge underlying the new competencies, which was articulated in the initiation and development phases, became increasingly tacit and formed the basis for new knowledge creation by learning by doing and incremental technical change (Keeble and Wilkinson, 1999).

Social relations and institutions at the local, regional and national levels also promoted knowledge creation in industrial networks between firms (Hakansson, 1982; Storper, 1993, 1994). This process of interaction between different levels of economy led to the emergence of specific national and regional systems of knowledge creation (Lundvall, 1992; Nelson, 1993) and structure which was also called an innovation system. According to Pyke (1994, p.4) there were at least three basic ways in which small firms could seek to survive and prosper in a globalized environment. Firstly,

small firms could obtain collective strength by networking with other small firms. This implied that firms innovate, produce and/or market through alliances and collective institutions. In this type, *SMEs within local production* systems would make use of local or regional input factors in their innovation process. Therefore local production systems' innovations were the result of firm-specific and region specific knowledge. Secondly, firms could compete 'individually' on markets. This type of SME was the 'isolated' end firm or firms that did not or could not participate in local production systems. However, they could enter into collaboration in national and/or international production and innovation systems. Thirdly, small firms 'could strengthen their claims to be preferred suppliers to large corporations by updating their manufacturing quality and delivery standards' (Pyke, 1994, p.4). This type referred to subcontractors who supplied firms outside the region, or large, dominant local firms.

In Turkey, empirical analysis shows that social relations and institutions are important in promoting local growth. Eraydin and Armatli-Koroglu (2005) show that in Denizli, among the total connections, 53.08% are local, 13.62% national and 33.3% are international/global. Bayirbag (2010) explains the success of Gaziantep in terms of the number of business associations and their engagement in the locality. He claims that scalar strategies of representation are the best instrument for shaping, coordinating and linking newly emerging structures.

Therefore, an innovation system consisted of a production structure (techno-economic structures) and an institutional infrastructure (political-institutional structures).

According to Lundvall (1992), a distinction could be made between a narrow and a broad definition of an innovation system respectively:

“The narrow definition would include organizations and institutions involved in searching and exploring—such as R&D departments, technological institutes and universities. The broad definition ... includes all parts and aspects of the economic structure and the institutional set-up affecting learning as well as searching and exploring—the production system, the marketing system and the system of finance present themselves as subsystems in which learning takes place” (Lundvall, 1992, p. 12).

Moreover, there could be two different kinds of alternative models of innovation, i.e. the top-down linear model and the bottom-up interactive model. The common characteristic of the two models is that R&D had particular importance in both the linear innovation model and the interactive innovation model (Table 3.6). Studies undertaken by Jaffe (1986, 1989) showed that firms’ innovative and economic performance depended not only on their own investment in R&D, but they were also strongly affected by R&D spending of other firms and universities. Also, Jaffe *et al.*, 1993, showed that knowledge spillovers, as measured by patent citations, were most likely to occur within geographically bounded areas rather than flowing freely across regions. These results had quite obvious and fundamental implications for the economic theorizing of technical change and innovative processes. Firms’ efforts to advance technology did not generally proceed in isolation, but they were strongly supported by various external sources of knowledge: public research centres;

universities; industry associations; and other firms (Kline and Rosenberg, 1986; Von Hippel, 1988; Nelson, 1993). Therefore, localities and communities were very important in terms of knowledge creation. They facilitated the evolution of

	Linear innovation model	Interactive innovation model
Important actors	Large firms and the R&D sector	Both small and large firms, the R&D sector, clients, suppliers, technical colleagues, public authorities
Important inputs in the innovation process	R&D	R&D, market information, technical competence, informal practical knowledge
Geographical consequences	Most innovative activity (R&D) in central areas	Innovation activity more geographical widespread, but especially occurring in manufacturing milieu
Typical industrial sectors	Fordist manufacturing	Flexible industrial sectors
Implications for regional policy	Promote R&D in less central areas	Developed regional innovation systems, linking firms to wider innovation systems

Table 3.6 Characteristics of two innovation models (Gregersen and Johnson, 1997)

institutions, common language, social bonds, norms, and values, which all added to the process of accumulated learning (Morgan, 1996).

Localised capabilities were primarily based on:

- the *region's infrastructure and built environment*;
- the *natural resources accessible* in the region;
- the region's specific *institutional endowment*; and
- *the knowledge and skills* available in the region.

The institutional endowment, therefore, became very important in the creation of localised capabilities. The institutional endowment could be defined as embracing all the rules, practices, routines, habits, traditions, customs and conventions associated with the regional supply of capital, land and labour and the regional market for goods and services. It also included the entrepreneurship spirit, moral beliefs, political traditions and decision making practices, culture, religion and other basic values characterising the region. The regional institutional endowment might be created, transformed, eroded and recreated through the economic history of the region, but at each point in time it had a directional effect on the efforts of firms in the region by supporting and assisting some types of knowledge creation while hampering or preventing others. The institutional endowment also interacted with the available

physical and human resources or the built environment and the regional infrastructure in constituting localised capabilities, which in turn influenced the competitiveness of the firms in the region (Maskell and Malmberg, 1999). This interaction process created a public dimension which was called ‘collective learning’ (Camagni, 1991; Lorenz, 1992; Lazaric and Lorenz, 1997; Lawson, 1997).

3.3.4.2 Innovative Milieu

Collective learning could be defined as a dynamic process of the cumulative creation of knowledge freely transferred among economic agents whatever its origin by interactive mechanisms based on shared rules, norms, organisations and procedures. The concept of collective learning was at the heart of the milieu innovator theory (Capello, 1999) because when cooperation and the tacit transfer of knowledge were transformed into innovative strategy and capacity, rather than simple social solidarity and interaction, a local district became a milieu (Aydolat, 1986; Aydolat and Keeble, 1988; Camagni, 1991; Ratti et al, 1997). The milieu was characterised by collective learning, by a local labour market which local firms fed with their knowledge independently of their will, and from which they could obtain local dynamic advantages (Capello, 1999).

A local milieu might be more narrowly defined as a segment of territory that was characterised by a certain coherence based on common behavioural practices as well as a ‘technical culture’ – a way to develop, store and disseminate knowledge, technical ‘know-how’, norms and values – that was linked to a certain type of

economic activity (Coffey and Bailly, 1996). The ‘innovative (local) milieu’ approach (Maillat, 1995) thus emphasised the interaction that took place between economic, socio-cultural, political and institutional actors in a given place: the complex web of relations that tied firms, customers, research institutions, the school system and local authorities to each other. The region, the territory, or ‘space’, was not seen merely as a ‘container’, in which attractive location factors may or may not happen to exist, but rather as a milieu for collective learning through intense interaction between a broadly composed set of actors. The milieu was a ‘created space’ that is both a result of and a precondition for learning – an active resource rather than a passive surface (Coffey and Bailly, 1996).

According to Malmberg and Solvell (1997, p.11), “[a]n innovative milieu [is] a segment of territory that is characterized by a certain coherence based on common behavioural practices as well as a ‘technical culture’ - a way to develop, store and disseminate knowledge, technical know-how, norms and values - linked to a certain type of economic activity”. Such milieus, they argued, had four basic characteristics:

- a group of actors (firms and institutions) that are relatively autonomous in decision-making and strategy formulation;
- a specific set of material, immaterial, and institutional elements combining firms, infrastructure, knowledge, know-how, authorities, and legal frameworks;

- interaction between actors based on cooperation; and
- a self-regulating dynamic that leads to learning.

Therefore, the milieu developed from the interaction of businesses, political decision-makers, institutions and the workforce, who worked to reduce the uncertainties of technological change through joint and cooperative learning. This common learning process (Maskell & Malmberg, 1999; Keeble & Lawson, 1998) followed due to the mobility of the workforce, supply chains and face-to-face contacts, which were furthered by spatial proximity. A relatively common definition describes a milieu as “... a territorialized set-in which interactions amongst economic agents develop as they learn about multilateral transactions that generate innovation-specific externalities, and as the learning processes converge towards increasingly efficient forms of joint management of resources” (Maillat, 1995, p. 161). A milieu does not necessarily have to be restricted to a region; however, spatial proximity significantly raises its effect owing to the spatial determination of numerous elements of a milieu (Castells, 1989; Cre´voisier and Maillat, 1991; Rallet, 1993). In the framework of the innovative milieu approach, it was assumed that factors supporting innovation profit from the informal contacts and intensive linkages between participants in a local network (Todtling, 1990; Fromhold-Eisebith, 1995; Sternberg, 2000).

In Turkey, rather than focusing on the concept of innovative milieu, studies explain the relationship between regional growth and firms. The high rates of growth are explained by the outcome of competitiveness and innovativeness, i.e. initiating new

products and processes, as well as the efforts to get connected to the global market (Eraydin and Armatli-Koroglu, 2005). Export-led growth can be achieved not only by the state support but also by local dynamics. Empirical analysis shows that new sectors depend less on the state and networks formed with global suppliers and customers are the main characteristics of industrial clusters (ibid, 2005).

To sum up, although there are different terms involved in the definition of ‘learning region’ and ‘innovative milieu’, they have more in common than they differ from each other. Hassink (1997) stated that these terms clearly shared much because they all pointed to the fact that proximity mattered; they were all seen as an outcome of wider economic and social shifts. When the concepts are examined in detail, the place-based roles of information, knowledge, and ‘learning’ are emphasized as promoters of local economic growth. Immobile human capital, intensive interconnection between agents, and the shared cultural, psychological, and political backgrounds of network participants are at the core of the concepts (Maillat, 1996).

3.3.5 Competitive Advantage

The competitive advantage model (Porter, 1990:1998) is based on the assumption that firms in particular industries have the ability to create and sustain competitive advantage in international terms. In his approach, Porter, basically, tried to answer why some nations succeed and others fail in international competition. He particularly analyzed the role of a nation’s economic environment, institutions and policies. Porter used productivity in his analysis as it is *‘the root cause of national capita income’*

(Porter, 1998, p.6) in the long run of a nation's standard of living and it is the only meaningful concept of competitiveness at the national level. Since international trade and foreign investment have both opportunities and threats to national productivity, he proposed the specialisation of industries and segments in which firms were relatively more productive in the economy. He analyzed relatively sophisticated industries and segments of industries involving complex *technology and highly skilled human resources*, which offered the potential for high levels of productivity as well as sustained productivity growth (Porter, 1998, p.10). Therefore, technology remained at the centre of the production process.

Porter uses the concept of the 'home base' for the nation "*...in which the essential competitive advantages of the enterprise are created and sustained. It is where a firm's strategy is set and the core products and process technology are created and maintained...the home base will be the location of many of the most productive jobs, the core technologies, and the most advanced skills...(Porter, 1998, p.19)*". So industry was the basic unit of analysis for understanding competition. Competition strategy was then linked to the understanding of the structure of the industry and how it was changing. Firms created competitive advantage by perceiving or discovering new and better ways (in terms of technology and innovation) to compete in an industry and bringing them to the market. According to Porter (Porter, 1998, pp. 45-47), the most typical causes of innovations that shifted competitive advantage were: *new technologies, new and shifting buyer needs, the emergence of new industry segments, shifting input costs and availability and changes in government regulations.*

Four broad attributes of a nation's environment in which local firms competed in the creation of competitive advantage were identified by Porter (1998) to explain the success of a particular industry to compete internationally.

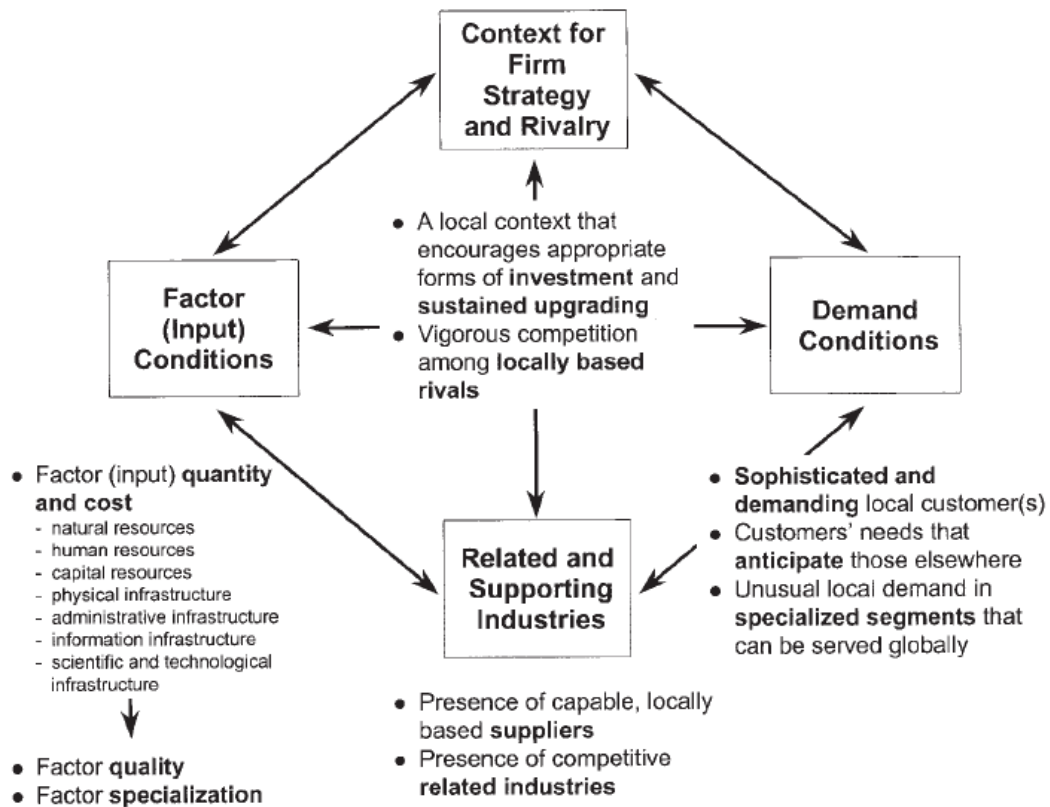


Figure 3.6: Porter's diamond model (Porter, 1998, p.71)

Factor conditions corresponded to the nation's potential in areas such as skilled labour, natural resources, physical/administrative/information infrastructure, that were necessary to compete in a given industry. Quantity and cost, quality, and *specialization* were three main elements under factor conditions. Demand conditions were explained by the nature of home demand for the industry's products and services. Home demand conditions could be changed according to the segment structure of nature, sophisticated and demanding buyers and anticipatory buyer needs. Related and supporting industries were explained by the presence or absence in the

nation of supplier industries and related industries that were internationally competitive. Finally, firm strategy, structure and rivalry corresponded to the context in which firms were created, organised and managed as well as the nature of domestic rivalry. These four attributes of the local environment play a major part in enabling domestic firms to gain and sustain competitive advantage. These factors interact with each other to form a mutually reinforcing system.

Porter's recent contributions revolve around the demand side his model (Porter, 2000). He focused on clusters "*...clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field that are present in a nation or region (Porter, 2000, p.15)*". According to him, clusters affected competition and his diamond model by;

- increasing the current (static) productivity of constituent firms or industries;
- increasing the capacity of cluster participants for innovation and productivity growth; and
- stimulating new business formation that supports innovation and expands the activities located in a cluster.

The cluster approach has implications both for economic development and companies. Porter (2000) argues that in the early stages, the government should focus on improving the local infrastructure and eliminating disadvantages. Then, the

government should concentrate on removing obstacles to innovation. Porter (1998) argues that promoting clusters in developing countries should start with the basics such as improving market capitals, institutions, education and skill levels and technological capacity.

In Turkey, the ‘cluster’ concept emerged in ‘SME Strategy and Action Plan⁶⁸’ for the first time in a policy document. However, although the aim of promoting clusters was to support the establishment of business clusters and increase the capacity of cooperation, there was no evidence of what the Turkish definition of clusters was. It was stated that those clusters were to be formed in Organized Industrial Zones (OIZs), Industrial Zones and Industrial Estates (SME, 2004, p. 73). In the final 9th FYDP (2007-2013), rather than increasing the competitiveness of less developed regions as in the previous Plans, it is aimed at both increasing the competitiveness of all the regions and decreasing the regional inequalities amongst the regions. To this end, the regional and spatial development framework is proposed to be developed at the national level and regional development strategies and plans are anticipated to be prepared in cooperation with the Regional Development Agencies (RDAs). Physical infrastructure requirements of enterprises as well as network creation and clustering initiatives are supported. As well as stated in the 2007-2009 SME Strategy and Action Plan, the policy idea of supporting clusters is highly encouraged in the 9th FYDP. Organized Industrial Zones (OIZs) are considered as the places where an environment for clustering is created. More than single industries, it is believed that clusters encompass an array of linked industries and other entities important to competition.

⁶⁸ SME Strategy Action Plan was prepared by the State Planning Organization in Turkey in 2004.

They include, for example, suppliers of specialized inputs such as components, machinery, and services as well as providers of specialized infrastructure. Therefore, support for clustering under the leadership of driving sectors is ensured within a strengthened social network. In this framework, creation of mechanisms, which supports local clusters, increases collaboration among the agents included in these clusters and ensures their integration with global markets, is encouraged.

3.3.6 Enterprise Segmentation

As opposed to identifying solutions to the problems of industrial geography, Taylor and Thrift (1983) proposed enterprise segmentation as a strategy in which a *broadly-based geography of business organisations* could be established. According to them, the interrelations between business organizations were underestimated by focusing on the exchange of goods and information. However, the importance of power in the organizational structure of segmentation was crucial. They explained that unequal power relationships between pairs and sets of organizations were manifested through commercial arrangements such as licensing, franchising, subcontracting. Their approach was different than the previous theoretical explanations because those explanations were only concerned with rational decision making of cost and competition and treated those power relationships too simplistically. Assumptions implied that interactions between various organizations were equal. The main emphasis in the enterprise segmentation model is that *industrial linkages* took the form of complex power networks in the capitalist economies which were only

partially competitive (Taylor and Thrift, 1982) and they were positioned within relevant local and global networks of power.

‘Power’ was defined as the ability of one organization’s control over another organization in terms of the resources necessary for functioning (Aldrich and Mindlin, 1978; Pfeffer and Salancik, 1978) such as capital, finance, materials, land and labour (Benson, 1975; Clegg and Dunkerley, 1980). This created the situation where an organization would be defined as either dominant or dominated. According to Taylor and Thrift (1982), this domination would also be differentiated as highly centralised and monocentric or diffused and polycentric. They identified the factors that divided organizations into such categories as:

- the bargaining process before contracts were signed
- access to finance
- the cost of external finance
- manipulation of trade credit for big organizations
- the composition of board members
- taxation
- the operation and extension of subcontract arrangements by large corporations

As opposed to Walker (1988), who considered the large corporation as the only fundamental influence on the changing structure and organization of the production system, Taylor and Thrift (1983) considered small businesses because of their social-organizational role (see Dicken and Thrift, 1992). Based on the idea of dual economy

(Averitt, 1968), the segmentation model highlighted the two major sets of enterprisers: *large business organizations and small firms* (Taylor and Thrift, 1980, 1981). They divided the companies of large business organizations and smaller firms into leaders, intermediates and laggards. Intermediates and laggards could be further split up into smaller units (see Taylor and Thrift, 1980 for detail). Amongst these organizations, leaders were explained in terms of the businesses of innovation and the long-term growth component of the organization. Intermediate companies were the operational centres of organizations. They were in charge of manufacturing established products and the marketing of established links. Laggard companies were low profit companies that produced commodities and faced strong competition. Also, they identified support companies for large business organizations as they provided general services to them.

Taylor and Thrift (1982) explained that each type of company moved across the product cycle, starting as a leader and gradually becoming a laggard. However, multidimensional companies were more likely to preserve their positions as they differentiated their product or market cycle. The leader stage, for example, was composed of R&D companies with skilled labour and management expertise. The emergence of a new product from the R&D stage enabled intermediate companies to differentiate the product and market it into separate functions to provide the core of profits. Finally, laggard companies were used as unskilled labour. The structure of the smaller firms also remained similar. Leader small firms relied on innovation and invention. However, although these firms had potential for growth into big organizations, they could not do it. Taylor and Thrift (1982) explained four reasons

for this unlikely transformation. The first was financial restrictions. Smaller firms were more dependent on loan finance. The second reason was that smaller firms were vulnerable to takeover because it was easier for larger business organizations to take over these smaller firms without the initial cost of setting up and risks. The third was related to the demand side of production. Although small firms were more flexible and able to respond quickly to fluctuations in the economy, they faced difficulties during recession. Finally, small firms could not expand the product or market cycle as the large businesses did. The intermediate segment of the small firms was relatively older than the leader firms. They continued their business by finding a niche for them to survive. Finally, the laggard firms consisted of a large number of smaller firms ranging across manufacturing, retailing, distribution and services.

By identifying each segment of the large and small organizations, they covered the problems of geographical scale, historical specificity or locational behaviour and the contextual definition of industries. Each problem had particular importance in understanding the industrial change in space. The problem of geographical scale was related to different organizational elements such as macro scale – political economy, meso scale – interorganizational structure and micro scale – individual business organization. The enterprise segmentation model embraced these three aspects in its theoretical structure. At the macro scale, segmentation theory was a cumulative consequence of the uneven development of the process of the concentration and centralization of capital. At the meso scale, it was the process of continuous negotiation among a network of business organizations whose organization in turn forms a network of establishments and the linkages between them varying over space.

Finally, at the micro scale, it was a set of particular internal organizations of production (Taylor and Thrift, 1983). Taylor and Thrift (1983) placed each unit of their segmentation model into the locational behaviour approaches in the literature. They highlighted each segment in the business organization with different scales of operation and different locational behaviours.

In Turkey, this domination is significant on the local economy in terms of the effects of large economic units. The İstanbul Chamber of Industry⁶⁹ (İSO), for example, produces a list of the “Top 500 industrial enterprises” every year. Although the top 10 companies represent almost 28 per cent of total production or sales in 2008, the share of five Koç⁷⁰ companies amongst the top 10 is around 45 per cent (Table 3.7). What is more striking is that Tüpraş (Turkey’s largest industrial enterprise based on crude oil processing) alone represents almost 40 per cent of the top 10 companies' sales. Tüpraş is four-and-a-half times larger than the second biggest firm. Another observation is that Koç companies compete with each other at the top of the industrial rankings. The figures indicate some serious signs of a rising concentration, or oligopoly structure, in Turkish industry.

However, these observations are only assumptions and more analysis needs to be undertaken to explore the impact of these large firms. For example, Sternberg and Tamasy (2010) analyse the role of Siemens as a large firm within the innovative environment of the Munich region particularly concerning its connection to R&D

⁶⁹ The data can be accessed through the website www.iso.org.tr

⁷⁰ Koc Holding is Turkey’s dominant industrial conglomerate. Koc Holding has five companies in the Top 10 Companies list: Tüpraş-Türkiye Petrol Rafinerileri, Ford Otomotiv Sanayi AS, Tofaş Türk Otomobil Fabrikası, Arcelik and Aygaz.

intensive SMEs. They show that even though Siemens is an important co-operation partner in the regional innovation system of Munich, it is not the dominant actor in terms of having a negative influence on SMEs.

Rank	Companies	Profit (TL)
1	Tüpraş-Türkiye Petrol Rafinerileri A.Ş.	27.732.867.295
2	EÜAŞ Elektrik Üretim A.Ş. Genel Müdürlüğü	6.249.112.724
3	Ford Otomotiv Sanayi A.Ş.	6.006.491.811
4	Ereğli Demir ve Çelik Fabrikaları T.A.Ş.	5.014.572.054
5	Oyak-Renault Otomobil Fabrikaları A.Ş.	4.710.974.763
6	Tofaş Türk Otomobil Fabrikası A.Ş.	4.184.361.976
7	Arçelik A.Ş.	4.068.892.569
8	İçdaş Çelik Enerji Tersane ve Ulaşım San. A.Ş.	3.828.300.738
9	Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	3.476.676.147
10	Aygaz A.Ş.	3.279.709.953

Table 3.7: Top 10 Companies in the “Top 500 industrial enterprises” list in 2008

(Source: ISO, 2009)

Although there has not been a study specifically on the enterprise segmentation model recently, there have been a number of studies in line with the segmentation model. Amongst them, corporations are the most relevant areas. Studies of the geography of corporations have focused on issues at two different scales (Tonts and Taylor, 2010). On the one hand, global level processes emphasises the importance of economic integration across national boundaries. They address issues such as global centres and

corporate control (Taylor et al., 2009; Sassen, 2006); the separation of production and control points (Phelps, 1993; Bartlett and Hedlund, 1996); and global corporate network (Carroll, 2007). On the other hand, the sub-national level emphasizes the ways in which corporations engage with regions and localities in processes of economic development (Storper, 1997; Oinas, 1997; Yeung et. al., 2001). Whilst these two sets of literature provide insights into the geography of corporations, very few recent studies, unfortunately, have considered the sub-national geography of corporate activities, including issues of segmentation (Taylor and Thrift, 1984), the internal differentiation of corporations and issues of branch plants and their local impacts (Tonts and Taylor, 2010).

3.3.7 Creative Class

Richard Florida's (2002) book *The Rise of the Creative Class* is the most discussed and criticised concept within economic geography and regional studies. According to Florida, the people climate is as crucial as the business climate in fostering regional economic growth. The main argument behind Florida's approach is that *technology, talent, and tolerance* are three basic cornerstones that generate regional growth in economic development. Each of these elements has a positive but limited influence on growth. Nevertheless, it is the combination of these elements that has a significant effect in economy: "*Each is a necessary but by itself insufficient condition: To attract creative people, generate innovation and stimulate economic growth, a place must have all three (Florida, 2002, p. 249)*". The concept of creative class argues that in addition to educated people who are essential in regional growth, a talented workforce

and a base of economic activities are important. In his later contributions, Florida's claim became more radical:

“My work is based on a relatively simple underlying theory – that human creativity has replaced raw materials, physical labour and even flows of capital as the primary generator of economic value, and that a new class structure is emerging as a result of that basic economic transformation” (Florida in Lang et al. 2005: 218).

The roles of human capital and talent have been the basis of many studies in economic geography. Romer (1986) argued that increasing returns could be accomplished by investment in knowledge. Lucas (1988) and Glaeser (1994) found that growth was associated with the density and level of human capital. Florida (2002), however, argued that the definition of human capital does not emphasize the creative mindsets that bring along growth and prosperity. According to him, growth is dependent on *innovation and creativity* and the most creative jobs facilitate economic growth. Therefore, Florida (2002) correlates economic growth with regions that hold a high percentage of ‘creative class’ people. The creative class people move to diverse and open minded or tolerant cities and large volumes of these people attracts investments in high tech industries.

The concept of creative class has attracted attention from scholars, policy makers and civic leaders (Lang and Danielsen, 2005). According to Boschma and Fritsch (2009, p. 392), Florida's main contribution in geography is that the creative class is not

evenly distributed across cities and regions but attracted to places that are characterized by an urban climate of tolerance that is open to new ideas and new people. Also there is a shift from sector perspective to creative occupations that are not necessarily industry specific (Boschma and Fritsch, 2009). Therefore, Florida's approach was different than the literature on agglomeration economies (Glaeser *et.al.*, 1992) which explores the relationship between regional specialization or regional diversity and innovation or regional growth. Florida, rather than emphasizing knowledge spillovers between firms and industries, has focused on creative individuals who facilitate innovation within a city or region (Stolarick and Florida, 2006). According to Boschma and Fritsch (2009, p. 393), Florida's theory has also brought a new perspective in studies of *human capital* and regional development. According to Florida, what people actually do is more important than what people know and hence it is the application of knowledge that matters (Marlet and Woerkens, 2004).

Florida's recent studies have stressed the importance of knowledge spillovers for regional growth (Knudsen *et al.*, 2007; Florida *et al.*, 2011). According to Knudsen *et al.* (2007), the effect of the creative class on innovation should be relatively pronounced in high-density areas and there is a relationship between the creative class and urban density. According to Florida *et al.* (2011), large-scale concentrations of key related skills, inputs and capabilities play a key role in the economic geography of creative industries.

Beside its contribution in geography, the concept of creative class has provoked considerable controversy in the literature of economic geography and development (Malanga 2004; Törnqvist 2004; Glaeser 2004; Gibson and Klocker 2005; Markusen 2006; Scott 2006; Boyle 2006; Peck 2005; Rausch and Negray 2006; Hansen 2007; Clifton 2008; Hansen and Niedomysl 2009). According to Markusen (2006), Florida's categorization of creative class does not represent his main argument.

“Business and financial occupations, for instance, include claims adjusters and purchasing agents. Managers include sales and food-service managers and funeral directors. Computer and mathematical occupations include actuaries and tax collectors. Engineers include surveyors and drafting technicians. Health care practitioners include dental hygienists and dietary and pharmacy technicians. These occupations may indeed be creative, but so too are airplane pilots, ship engineers, millwrights, and tailors – all of whom are uncreative in Florida's tally” (Markusen, 2006, p. 1923).

Similarly, Glaeser (2004) criticized the definition of the creative class as being no different from the studies of human capital and regional growth. According to Glaeser (2004), the creative class corresponds to human capital measured by educational attainment. Focusing on policy implications, Peck (2005) pointed to three problems that public policymakers face in case they implemented policies of the creative class. First is the increasing competition among regions to attract more talented people. He claimed that strategies formulated around this concept would result in implementing the same policies for every region of a nation. However, the premises and the

solutions to foster regional growth should differ considerably between regions. Second, Peck (2005) argued that competition for the creative class would change the priorities of localities and the focus would shift from exploring endogenous potentials towards creating attractive neighbourhoods. Finally, Peck (2005) argues that this approach should be seen as a development strategy instead of a survival strategy for already creative cities. According to him, physical and social infrastructure of a place would be a consequence of economic growth as much as a cause of it. From an institutional point of view, Storper and Scott (2009) argued that the concept of the creative class was disconnected from the institutional and economic structures of a place. They claimed that talented people generated a demand for services that again generated jobs for medium and low-skilled labour. Therefore, the relationship between different segments of society cannot be seen as a component that is disconnected from its environment.

According to Markusen (2006), the relationship between the creative class, diversity and urban space is problematic in the concept of creative class. She argues that since Florida's approach is concerned with metropolitan areas, he ignores the fact that a number of Florida's creative class works and lives at the sub-metropolitan level. Also Florida (2002) uses a 'gay index' to proxy diversity in his approach to talk about 'diversity'. However, according to Markusen (2006), the concept of diversity encompasses race, ethnicity, immigrant presence and economic-class mix for most Americans. So the concept is not very well defined. Moreover, such as the definition of diversity, the correspondence of human creativity is poorly constructed (Markusen, 2006). Studies of emerging occupations found no relationship between education level

and innovativeness (Hall *et. al.*, 1983). What is more is that it not ethical to label people as creative and not creative.

Overall, the creative class has been one of the most criticized models amongst other institutional theories of economic development. From a policymaking point of view, there is not much information regarding how creativity works, what distinguishes creativity and non-creativity, and how creative jobs should be formed. This makes the concept of creative class problematic for policy makers.

3.4 Conclusion

The purpose of this chapter is to provide a comprehensive overview of the institutional approaches of local and regional economic development and to link those approaches with the Turkish literature on local and regional development. It has been argued elsewhere (see Plummer and Taylor 2001a, 2001b; Taylor and Plummer 2003; Garlick et al 2007), that those institutionalist approaches to understanding local and regional economic growth have been interpreted as each involving different combinations and permutations of eight drivers that generate economic growth or allow regions to cope with economic change. These drivers and the theories into which they have been incorporated are listed in Table 3.8.

It has been stated that those drivers could be combined in an econometric model and they could be tested to explore the validity of theories of local and regional economic development ((see Plummer and Taylor 2001a, 2001b; Taylor and Plummer 2003;

Explanatory Variables	Theoretical Models						
	Competitive Advantage	Learning Regions	Flexible Specialization	Product Cycle	Growth Pole	Enterprise Segmentation	Creative Class
Technological Leadership	*	*	*	*	*	*	*
Knowledge Creation and Access to Information	*	*		*	*		*
Local Integration of Small Firms	*	*	*			*	
Institutional Support and Institutional Thickness	*	*	*				*
Human Capital	*	*	*	*			*
Power of Large Corporations				*	*	*	
Market Accessibility	*			*			
Local Sectoral Specialization	*	*					

* denotes that the variable is a key driver in a given theory

Table 3.8: The Dimensions of Theories of Local Economic Development
(Source: Taylor and Ersoy, 2011)

Garlick et al 2007). However, this approach raises some limitations. The first limitation for the Plummer/Taylor model (Plummer and Taylor, 2001a) is about the adequacy, or even the appropriateness, of translating the dimensions postulated by the theories into measurable parameters. There exists a pragmatic problem concerning the selection of appropriate proxy-variables, given the limited choice of variables that are typically available for this type of regional economic analysis. The problem is explained by the fact that those theories are not always straightforward to translate into testable propositions with observable implications. The theories tend to be built on stylized facts, such as ‘learning’, ‘knowledge’, and ‘institutional thickness’ constructed without real attention to understanding how they are going to be tested. Consequently, the process of hypothesis generation attempted in this study confronts, at least in a preliminary way, a major issue in terms of the variables the model constructed on. Nevertheless, that does not mean that this process has negative effects

on the robustness of the empirical model. In this study, this limitation is overcome by the integration of qualitative data.

The second issue is the scale of the model. The empirical results only show overall aspects of the significant variables in the analysis at the regional/national level. For instance, even though some variables are insignificant to explain the differential growth across regions/nation, this might not be the case for some provinces in particular regions. The Plummer/Taylor model, unfortunately, cannot pick up this specification. In the current study, this problem is overcome by undertaking focus groups from different parts of Turkish regions.

The third issue is about unpredicted aspects of human/firm behaviour across individuals. When the Plummer/Taylor model was constructed, the conclusion about certain aspects such as local integration of small firms or knowledge creation in some regions/provinces could only give an overall explanation in terms of whether these aspects did contribute to local and regional economic development. However, individual heterogeneity in modelling human/firm behaviour is limited in exploring why some firms do certain things while others do not. This problem can be overcome by undertaking a very detailed qualitative analysis. However, this is not realistic because the researcher can not consider doing such analysis in every region/province of the country he works on within a limited time-frame.

The last issue is about the heterogeneity across regions/nations. It was mentioned in the Plummer/Taylor model that there was a distinction between the Northern and

Southern parts of Australia. It has been also explained in this study that there is a distinction between the Eastern and Western parts of Turkey. The problem about the Plummer/Taylor model is that there maybe greater heterogeneity within Australian regions than across them that is needed to be taken into account in formulating models of local and regional economic development. This may affect the way an econometric model should be formulated. The integration of qualitative data, therefore, remains essential. Even though the Plummer/Taylor model has some limitations, it still offers detailed explanations. When combined with qualitative analysis, those limitations are not insurmountable.

What is important from a policy perspective is how well these different sets of ideas work to explain the processes of growth shaping regional economies in empirical national contexts. The dominance of the theoretical models that are developed in advanced countries has encouraged policy makers in Turkey to apply those theoretical models to local and regional economic development in Turkey and policies have been influenced directly or indirectly. This understanding of the contemporary situation needs to be challenged. In the first instance, it fails to acknowledge the current dynamics of the Turkish economic development. This has important ramifications not only for the nature of Turkey's economic transformation but also other developing economies. Secondly, it ignores the economic failures of the Western economic development theories. It is important to stress that the recent financial crises have indicated the failure of a series of attempts to restore sustained growth in advanced countries. Thirdly, the deterministic interpretation of the contemporary economic situation fails to acknowledge the fact that Turkey's economic development may well

differ from that of developed economies. Indeed, it is evident that current economic development theories are struggling to explain adequately the dynamics of local and regional economic development in transitional and developing economies. In recognition of these three points, it would seem reasonable to conclude that our understanding of Turkish economic development will require substantial revision and modification in the coming years. The remainder of this study uses the third chapter as its starting point and explores the dimensions of these theories as a part of its research design. Chapter 4 begins by providing an overview of the Turkish economic development. The following chapters provide a detailed examination of the selection of variables and available data in order to explore and analyze the dynamics of Turkish local and regional economic development.

4 METHODOLOGY

4.1 Introduction

“Facts have outrun ideas. Integrating theory has lagged far behind expanding experience” (Dunlop, 1958, vi)

It has been more than 50 years since Dunlop’s call to transcend the pragmatism and empiricism in studies of economic geography. Although his focus was on the study of industrial relations, his criticism is highly relevant for the development of theories of local and regional economic development. Some attempts have been made to understand the dynamics of regional growth through an identification of its underlying internal and external forces and modelling of their interaction in studies of regional development (Brookfield, 1975; Lucas, 1988; Martin and Sunley, 1998; Plummer and Taylor, 2001a, 2001b; Coe *et al.*, 2004). However, the real world situations that have been analysed empirically have focussed on regions in economically advanced and technologically innovative economies. These studies do not exist for less developed countries and their regions that suffer from poverty, unemployment and regional disparities. In these countries, the broader picture of the dynamics of regional development, particularly its social and political origins and the overall changes in regional inequality, have remained elusive and vague. This study is an attempt to understand the dynamics of local and regional economic development in a developing country, Turkey.

To do that, *theoretically informed empirical analysis* has been adopted as a methodology. This methodology involves both an econometric model and qualitative research. The econometric model is based on a selection of ‘proxy’ measures. In this chapter, the aim is to provide an overall account of the research design and highlight some of the issues that are encountered in the research design. The second part of the chapter explains the problems of theory in economic development and how theoretically informed empirical analysis overcomes the conceptual and analytical problems raised by the discussion. Finally, ethical issues and foreseen problems are considered at the end of the chapter.

Some of the details of the actual technicalities are explored in the later stages of the thesis where the analysis is presented. Hence, a part of the research design which is a step towards developing an econometric model, i.e. selection of the proxy measures, is a significant part in itself and it is covered in a separate chapter. Details of the model design and run are presented together with the analysis because they are intimately inter-twined. Qualitative research is undertaken after the results of the model are explored by analyzing policy documents supported by focus group discussions with a group of policy makers.

The main reason why qualitative analysis is employed after quantitative analysis in this research is related to the nature of the analysis. Economic modelling relies on national accounts and there is a lag between data and prevailing economic conditions (Downward and Mearman, 2007). In that sense, it is important to use different data sources (and types) to fill this gap. In this study, different types of data, i.e. document

analysis and focus group discussions, are used to assess the robustness of the quantitative analysis and produce a more accurate picture or balancing points of analysis. The qualitative analysis enables the inclusion of local views, foster region-wide dialogue and knowledge exchange which would enrich the meaning of the quantitative analysis.

4.2 The Problem of Theory in Economic Development

According to Hyman (1994), the reason why the mismatch between pragmatism and empiricism became more relevant in theoretical discussions is that theoretical disorientation became more apparent. There are three main reasons for this: ‘instrumental logic’ underlying the search for theory, the idea of integrating theories *post festum* and a fetishism of theorizing. The current section of the study explains that these factors are also valid in theories of local and regional economic development.

To start with, all social policies and plans are designed on the basis of more or less explicit and justifiable socio-economic, political, ideological, moral and philosophical considerations (Reich, 1988). According to Hyman (1994), ‘instrumental logic’ refers to the political perspectives of the policies of local and regional economic development. Those policies are designed to either solve or mask socio-economic problems. Those problems only appear when examining the current socio-economic situations as revealed directly or indirectly by indicators such as public dissatisfaction, rates of population growth, unemployment, inflation, and the ratio of GDP. The

political input to policy-making consists in politicians assessing the weight that advocacy for certain policies may have on their chances of staying in power by winning the next election (Bunge, 1999, p. 340). This creates a situation in which academics are involved in this process as advisers and they may play an instrumental role in helping politicians stay in power.

Hyman's second point is to raise awareness of the point in time when theories are applied to practice. If policies have been formulated to meet the practical concerns of politicians and government policy makers, can a 'postulating theory' really be created *post festum*? Empiricist theorizing puts forward "the belief that theory is a kind of intellectual sticking plaster which can help integrate an otherwise discrete assemblage of facts and recipes" (Hyman, 1994). However, Myrdal (1942, appendix) emphasizes that "practical conclusions" from social sciences – that is policies and plans – can only be drawn from data jointly with value judgements. The social scientist who looks for practical solutions to social issues should state explicitly his value premises (Myrdal, 1969, p. 63; Titmuss, 1976, p. 14). Similarly, socio-economic problems raise moral concerns because they involve "the inability of a large number of people to meet their basic needs or satisfy their legitimate wants" (Bunge, 1999, p. 341). Therefore, it is not possible to come up with policy practices without considering the theoretical discussions.

Finally, theorizing is believed to be a self contained field of academic endeavour which is detached from concrete research and practical prescriptions (Hyman, 1994, p.167). However, a fetishism of theorizing cannot be enough to explain some

dimensions in the social sciences. There are no realistic theories of imperfect markets with price setting firms (Solow, 1986). It is not yet known for sure whether wage rises destroy jobs (through cost increases) or create them (indirectly through consumption increases *a la* Keynes). In particular, it is doubtful that an increase in the minimum wage kills jobs (Card and Krueger, 1995). There are no realistic theories that explain the mechanisms of economic growth, business cycles or inflation. In economics, there are still plenty of hypotheses, models and theories that have never been checked except for logical consistency (Bunge, 1999, p. 147). Most econometric models rest on data vitiated by large errors and they are seldom checked against large samples of data (Hendry, 1980; Leamer, 1983). Therefore, theories should have some relation to the real world and hypotheses, models and theories must be empirically testable.

4.3 Motivation and Research Design: Theoretically informed empirical modelling

To overcome the conceptual and analytical problems raised by the discussion above, there is a need to bridge theory and empirical analysis. Bunge (1990, pp. 90-91) states that bridge building is essential in social studies. According to him, the boundaries between disciplines in the field of social science are ‘artificial’ because they derive from sectoral vision, and the division of labour. For example, the marriage rate, emigration, crime ratio and suicide rates increase or decrease with the employment rate, which in turn rises or falls with the GDP or the volume of foreign trade (Thomas, 1925).

One of the main contributions of interdisciplinary studies is introduced by Polanyi (1944). He states that individuals and social systems are firmly embedded in social networks of various kinds, from social “circles” to families and business conglomerates. Granovetter (1974, 1983) applies this concept to the labour market and to the process of obtaining a job. He divides a person’s ties into strong (relatives and friends) and weak (acquaintances). He argues that acquaintances are the more effective than relatives and friends because they tend to have more access to job information. So market forces only are not enough to explain market dynamics.

Theoretically informed empirical analysis contributes to the debate on the nature of local and regional economic development in Turkey by explicitly relating context, substance and process. The analysis conceptualizes a set of local and regional economic development theories and derives variables that link technology, knowledge, businesses, institutions, human capital, corporations, markets and specialization. These factors were identified by developing hypotheses which can be empirically investigated and that were informed by existing theory.

4.3.1 Design

The key features of the research design is built on a series of papers (Plummer and Taylor, 2001a; 2001b; 2003; 2010) which attempt to address issues of empirical validation, the theory-empiricism gap, and the validity of theories of local and regional economic development in the context of understanding uneven regional growth. These papers explore a range of theories of local and regional economic

development in economic geography and develop testable dimensions that can be incorporated into an econometric model. A scheme of measurement is developed to calibrate those dimensions and empirical analysis has been verified by undertaking qualitative analysis. These are the steps that the thesis is constructed on:

- 1- Identification of a group of theories
- 2- Identification of potential measures
- 3- Identification of actual proxy measures
- 4- Compiling the dataset
- 5- Running a model
- 6- Analysing the model which will then lead into qualitative data

Empirical knowledge has been constructed by unpacking a set of six theoretical arguments in an economic modelling perspective. The theoretical models are growth poles (Perroux, 1955), product cycles (Vernon, 1966), flexible specialization (Scott and Storper, 1992), learning regions (Braczyk *et al.*, 1998; Lundvall, 1992; Maillat, 1996; Maskell *et al.*, 1998), competitive advantage (Porter, 1990) and enterprise segmentation models (Taylor and Thrift, 1982, 1983; Dicken and Thrift, 1992). These theoretical arguments were discussed in a series of papers (Plummer and Taylor, 2001a; 2001b) for the Australian context. This study utilizes the same theoretical arguments in the Turkish context and adds an additional theoretical argument proposed after that study, i.e. creative class (Florida, 2002). Nevertheless, there is also a major difference between these two studies. Turkey is a transitional economy and a developing country. Therefore, the theoretical arguments and proxy measures that will

be discussed in the thesis correspond to different theoretical discussions which make this study original and interesting. Moreover, not only has this form of analysis not been done in a developing country like Turkey, but the theories themselves have had an impact on the Turkish regional planning process. The results of this study will not only enable the researcher to shed light on understanding the dynamics of local and regional economic development in Turkey but also make a comparison between the Australian and Turkish contexts in terms of those theories' contribution to understanding the economies of these two countries.

Following the identification of a group of theories and the arguments which derived from those theories, potential measures that could be used to assess each of those theories are identified. In the next step, actual proxy measures are defined and the dataset is compiled. In that stage, data are collected in line with the theories of local economic growth to understand the processes driving such growth in Turkey. This raises key methodological questions about how the data are generated, the role of theory in constructing and validating the explanation, and how much inference is appropriate in measuring data against theory. In contrast with the conventional interpretations of empirical modelling in economic geography, the aim is both to search for patterns of local economic growth or the potential drivers of it; and to use maps generated using theoretically informed empirical measurements to:

(a) identify the nature and degree of uneven regional economic development across Turkey;

- (b) test the empirical plausibility of competing theories of local economic growth;
- (c) assess the potential impact of policy intervention on the drivers of local economic growth.

In the next stage, an econometric model is constructed and proxy measures are run in the model. The results of the model are analyzed and they lead into qualitative data. In that stage, the results of the empirical model are discussed by analyzing policy documents supported by focus group discussions with policy makers in Turkey.

The quantitative approach enables the breadth of regional growth, and its determinants, to be assessed across 81 provinces in Turkey. Growth potential in each province can be seen in the context of its competitive relationship with other provinces, rather than in isolation. All too often, regional analysis is undertaken as a single-region case study, leading to the conclusion that other regions have no influence on the outcomes of the targeted region. In a globally competitive environment, this is a significant weakness in analysis that may lead to the development of unrealistic policy and practice, and can hide, on a spatial basis, where the best return on policy interventions could occur. Therefore, analysis needs to be deep as well as broad to capture the underlying and unrealised regional capacity that may not be apparent from the econometric modelling framework for the 81 provinces of Turkey. The contingency of location, and its influence on the growth transmission and translation process, is explored in-depth in this research project through the analysis of policy documents and focus group interviews which are picked from

different regions of Turkey and hence represent different spatial circumstances. In the analysis, it has been argued that ‘place’ is important, and that each province has a set of qualitative characteristics (historical, cultural, economic, social, natural, etc) that not only make it distinct from other provinces, but influence its capacity to grow and be competitive or retard its development. However, these characteristics can be subjective and provide limited value for the analysis. The focus groups enable the inclusion of local views, fostered region-wide dialogue and knowledge exchange, confirmed the quantitative analysis. The qualitative investigation further informed the conclusions about regional growth and their determinants arrived at through the quantitative work.

4.4 Quantitative Research

The quantitative research aims to quantify the core concepts of the local and regional development theories that are identified in the literature review. After conceptualizing a set of local and regional economic development theories, a group of variables are derived. In the next step, it is essential to describe how these variables are calibrated in the Turkish context. Chapter 5: Selection of Variables explores the selection process. It describes what sorts of problems have been encountered, what is done in terms of overcoming those problems, how the data is collected, what the issues are regarding to the data. The dataset is created by collecting data from the Turkish Statistical Institute, OECD, International Labour Organization, and the Small and Medium Enterprises Development Organisation. To find the best proxy measures for the analysis, the theoretical background is checked on the regular basis to protect the

meaning of the variables. In the second stage, an econometric model is constructed to test the variables derived from the local and regional economic development literature.

Econometrics can be defined as the application of statistical methods to economic data. An econometric analysis begins with the formulation of a mathematical model that is grounded in economic theory. The model is then specified in a form that can be tested with data using selected techniques. The results of testing the model are finally analysed to determine whether the underlying economic theory provides a satisfactory explanation of the empirical results (Greene, 1990; Griffith, Hill and Judge, 1993; Johnson and DiNardo, 1997). However, unfortunately, economic theories are highly abstract or they change over time. Also, the data evidence can be problematic because economic magnitudes are inaccurately measured and many important variables are very difficult to rationalize or even observe. This makes the modelling process difficult. Granger (1999) states that there is no single best way to describe how to specify an empirical model. The current study considers challenges of building an empirical model. Therefore, in the next step, it analyses policy documents and undertakes interviews to compare and complement the initial part of the empirical analysis.

4.4.1 Empirical Modelling and the Need for Using the ‘General-to-Specific Approach’

The current study explores the dynamics of seven theories that have been discussed in Chapter 3 Theorizing Regional Economic Development and hence the process is empirically informed in itself. However, empirical modelling of those theories is not an easy process. There is no single best way to describe how to specify an empirical model (Granger, 1999). Fortunately, the situation in empirical modelling is not bleak for two reasons (Campos *et al.* 2005). First, the accumulation of knowledge is progressive and the researcher does not have to know all the answers at the start. Second, compatibility between the conjectured model and data is not very difficult to observe with the use of various sophisticated software programmes. Furthermore, the qualitative part of the research is undertaken after the model is applied which enables the critical evaluation of the data and the model together. Therefore, the current study is an attempt to pull out the information available and evaluate whether it makes sense in a theoretical perspective. In 2002, Donald Rumsfeld (United States of Defence Secretary) stated that:

“...there are known "knowns." There are things we know that we know. There are known unknowns. That is to say there are things that we now know we don't know. But there are also unknown unknowns. There are things we do not know we don't know...” (Rumsfeld, 2002)⁷¹

⁷¹ Rumsfeld, D. (2002) The statement was made by Rumsfeld on February 12, 2002 at a press briefing where he addressed the absence of evidence linking the government of Iraq with the supply of weapons of mass destruction to terrorist groups.

To put it in other words, the absence of evidence does not necessarily mean that this is the evidence of absence. Without any attempt, no science could have advanced. Campos *et al.* (2005) state four different steps to undertake an empirical model (Figure 4.1). In the first step, data have been generated by exploring and understanding the essence of the theories used in the current study (Chapter 5: Selection of Variables). A central aim of this step is to determine the most appropriate proxy measures that have been described in Chapter 5. The second step is to assume a probability structure for the data. Since the data generation process (DGP) involves too many parameters to estimate on available data, reductions of the DGP are essential. A set of statistical analyses are undertaken to increase the possibility of the variables that are going to be used in the modelling process.

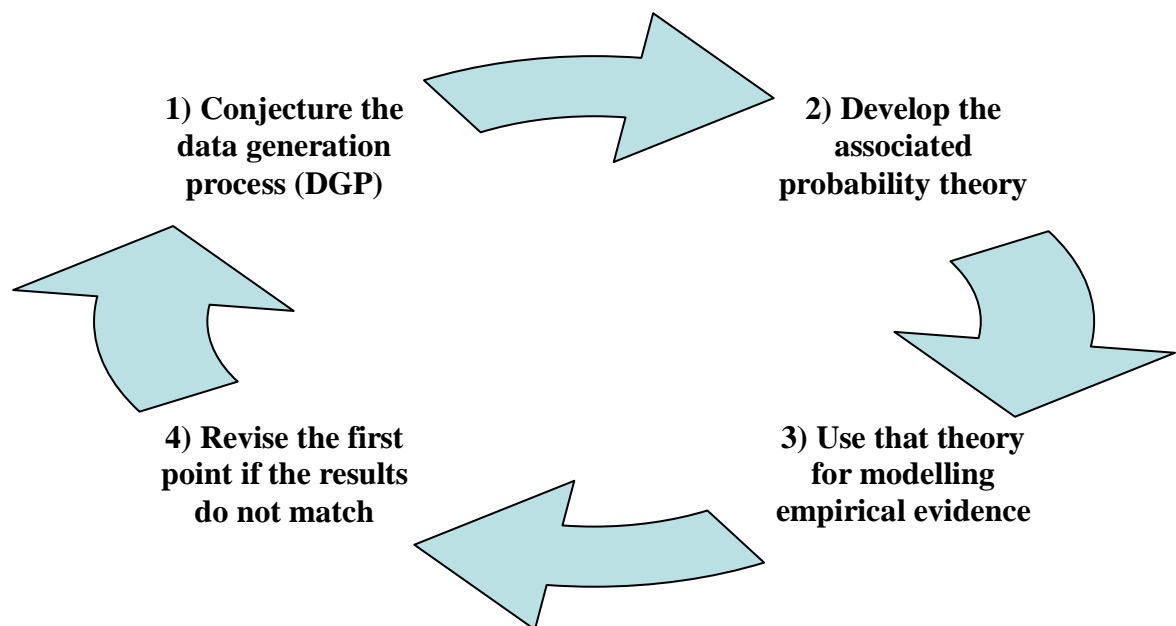


Figure 4.1 Steps to undertake an empirical model

Having postulated a reasonable probability basis for the DGP, variables are used to generate data in the third step. An ordinary least squares (OLS) regression equation enables the use of a range of testing procedures to evaluate the robustness of the model (Chapter 6: The Model). Statistical properties such as residential autocorrelation, heteroscedasticity and collinearity are regarded as inherent to the model so that the model can be re-specified by eliminating undesirable features of the data. This has resulted in the revision of the first point so that the model can permit estimation with desirable properties.

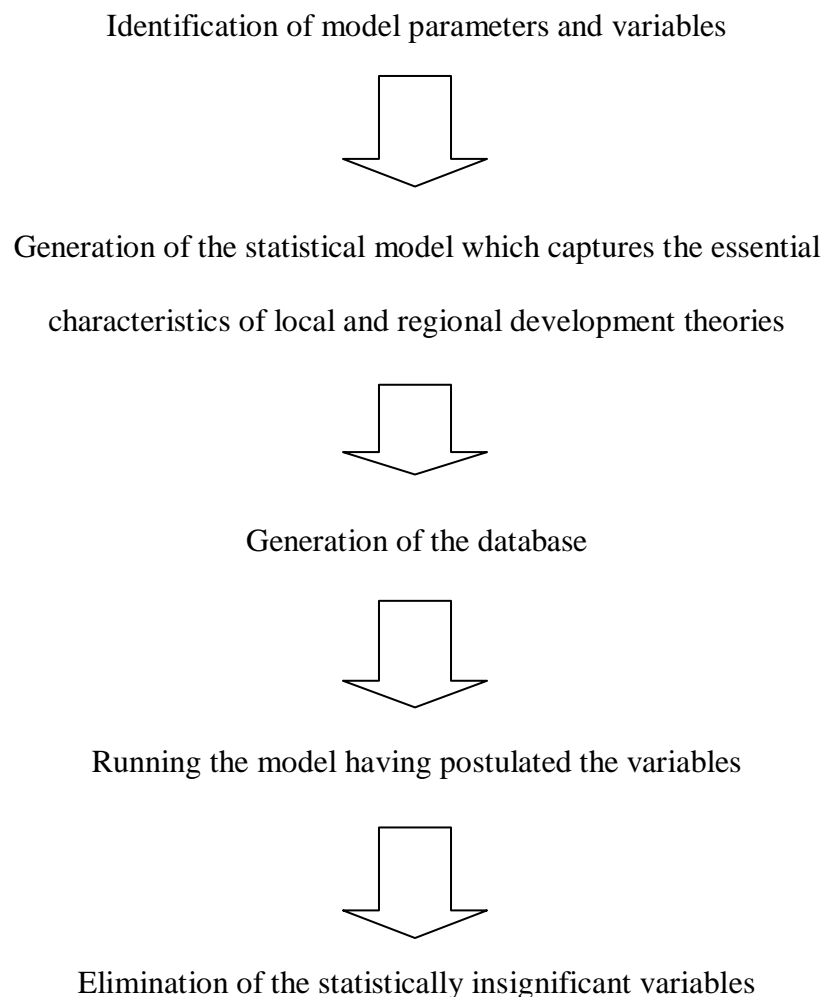


Figure 4.2 Summary of the general-to-specific approach

The essential feature of a general-to-specific model selection is to begin with an over-parameterized model that contains all the information derived from the theories. Empirical analysis starts with a general statistical model that captures the essential characteristic of the underlying dataset of the theories mentioned in Chapter 3. Having created the database, the general model has been run by the variables extracted from the theories. Then, the model is reduced in complexity by eliminating statistically insignificant variables, checking the validity of the reductions at every stage to ensure congruence of the finally selected model (Figure 4.2). The initial analysis explores the variables and identifies a number of variables that are statistically insignificant. Those variables are excluded from the model. This enables the researcher to identify those proxy measures that are statistically significant and that could be involved. Finally, the empirical result of the model is utilized to feed into the second part of the study, i.e. the qualitative research.

4.5 Qualitative Research

To verify the validity and robustness of the results, both quantitative and qualitative research methods are used in the study to ensure that factors determining both the breadth and depth of regional and local growth variation within a national framework of all provinces are identified.

“to be used effectively, primary data collection must be part of an integrated process that begins with the underlying research questions, it is informed by an

understanding of previous work, and which is designed with a specific plan in mind for analysing the data” (Parfitt, 2005:75)

The main reason why quantitative analysis is followed by qualitative analysis is that the internal logic of quantitative analysis in this research rests upon the validity of the qualitative analysis. This enables the quantitative analysis be open to revision and reassess in connection with the nature of the drivers of Turkish local and regional development being investigated. Therefore, the qualitative side of analysis is used to inform the quantitative results with specific regional and local circumstances, thereby gaining a closer understanding of how regional growth actually occurs and explaining the main research question of the thesis. Moreover, because the qualitative method is less structured and hence “more flexible” (Madge and O’Conner, 2004), it is going to allow the author to modify the interview process and allow him to explore in depth aspects deemed important for the interviewee. Therefore, qualitative data uncovers trends and allows linkages between a set of independent and dependent variables to be explored. In the current study, the qualitative data is constructed through two different stages: document analysis and focus groups interviews. These stages are used to assess the robustness of the quantitative analysis and produce a more accurate picture or balancing points of analysis. The qualitative analysis enables the inclusion of local views, foster region-wide dialogue and knowledge exchange which would enrich the meaning of the quantitative analysis. In the following sections, these two stages are explained in detail.

4.5.1 Document Analysis

Document analysis is a systematic procedure for the evaluation of the policy documents. It requires that data is examined and interpreted to gain an understanding of the policy so that empirical knowledge is produced (Corbin and Strauss, 2008; Rapley, 2007). The procedure entails finding, selecting, appraising and synthesising data contained in documents (Bowen, 2009). Document analysis is often used in combination with other research methods as a means of triangulation. By triangulating data, an attempt is made at providing ‘a confluence of evidence that breeds credibility’ (Eisner, 1991, p.110). According to Patton (2002), triangulation helps the researcher guard against the accusation that a study’s findings are simply an artefact of a single method or a single source.

An important benefit of document analyses is that they can yield information that researchers are unable to observe (Patton, 2002). They are useful for acquiring data that human participants are not aware of at the time of data collection. Specifically, documents can allow researchers to gain knowledge of events that took place before data collection, private interactions or interchanges, and decisions that are not widely publicized or easily accessible. In addition, documents can yield useful information about individuals who are not directly involved in the assessment.

In the current study, empirical knowledge is developed by analysing the ideas that currently shape the policy agenda of the regional development agencies’ (RDAs) in Turkey. These ideas are reflected in the policy documents that are produced by the

Turkish government. Although the RDAs also produce policy documents, they are structured around the main policy documents, that are the Five Year Development Plans (FYDPs). FYDPs are prepared by the State Planning Institute; various documents that are produced by the Turkish Cabinet council such as Medium Term Programs; the United Nations Development Program and the Millennium Development Goals. Since these documents are written in Turkish, the researcher has translated the relevant information into English. The main idea behind analysis of these documents to see whether there is a mismatch between the empirical results of the quantitative analysis and the ideas that currently shape the policy agenda of the local and regional economic development in Turkey.

4.5.2 Focus Groups

The focus group is defined as an interview style designed for small groups. As a research technique, focus group interviews go back to the beginning of the World War II (Libresco, 1983; Merton, 1987; Morgan, 1989) when they were used to determine the effectiveness of radio programs designed to encourage army morale. Although focus group interviews are used frequently within the confines of marketing research (Bartos, 1986; Hayes and Tatham, 1989; Moran, 1986; Morgan, 1989), there are other examples of focus groups in studies of social sciences (Flaskerund and Calvillo, 1991; Berg, 2000; Fongwa, 2002). Berg (2004, pp. 126, 127) explains that there are a number of significant advantages that are associated with the use of focus groups as a data-gathering-strategy: flexibility; permitting observation of interactions; and

allowing researcher to access substantive content of verbally expressed views, opinions and experiences.

In the current study, focus groups will be based on policy makers in Turkey. They will be selected from different regions of Turkey and they will be informed about the aims and objectives of the research in advance. Focus groups are also given as set of questions in a questionnaire that are going to be discussed during the discussion. The sampling design, sampling size and the questionnaire are explained in the flowing sections. However, even though it is assumed that session participants have their answers ready, the aim of focus group discussions is to get the spontaneous responses from those participants through their interaction. The researcher will act as a facilitator in the conduction process by explaining what the project aims for and he will ask the group if they understood the project. Since a recording device is attempted to be used during the discussion process, the participants will be asked if they agree to being recorded. Some illustrations such as maps and figures will be distributed during the session and participants are encouraged to get involved in discussions by referring to the drawings and maps. Hearing how one group member responds to another provides insights without disrupting underlying normative group assumption (Berg, 2004). Rubin and Rubin (1995, p.140) explain:

“In the focus group, the goal is to let people spark off one another, suggesting dimensions and nuances of the original problem that any one individual might not have thought of. Sometimes a totally different understanding of a problem emerges from the group discussion” (Rubin and Rubin, 1995, p.140)

As well as the group dynamics, the task of the moderator is very important in the focus group interviewing process. The moderator's guide includes five main tasks (Berg, 2004, pp. 133-135). First, the moderator should explain what the project is aiming and how a focus group operates. It is important to ask the group if they understand the project and their role in the research. Second, it is essential to state the basic rule or guidelines for the interview. Since a recording device is planned to be used during the discussion process, it is very important to ask if the participants agree to being recorded. If they are not comfortable, they are informed that the discussion is analyzed by taking notes. Third, most focus groups operate with a short series of discussions, sparked by questions asked by the moderator (Krueger, 1997). So short question-and-answer discussions should be preferable. Fourth, since some illustrations such as maps and figures are distributed during the session, participants are encouraged to get involved by referring to the drawings and maps. Finally, the moderator shows sensitivity when dealing with certain subjects. Because the current research is to understand the dynamics of local and regional development in Turkey, politics play an essential role on this subject. Therefore, rather than going into the subject directly, a general question for discussion is asked to facilitate discussion.

4.5.2.1 Sampling Design for the Focus Group

Sampling, which is the process of selecting "a portion, piece, or segment that is representative of a whole" (The American Heritage College Dictionary, 1993, p. 1206), is an important step in the research process because it helps to inform the quality of inferences made by the researcher that stem from the underlying findings.

Building on the work of Patton (2002) and Miles and Huberman (1984), Onwuegbuzie and Collins (2007) identified 24 sampling schemes that they contend both qualitative and quantitative researchers have available for use. All of these sampling schemes fall into one of two classes: random sampling (i.e., probabilistic sampling) schemes or non-random sampling (i.e., non-probabilistic sampling) schemes. These sampling schemes encompass methods for selecting samples that have been traditionally associated with the qualitative paradigm (i.e., non-random sampling schemes) and those that have been typically associated with the quantitative paradigm (i.e., random sampling schemes) (Onwuegbuzie and Collins, 2007).

		Qualitative Component(s)	
		Random Sampling	Non-Random Sampling
Quantitative Component(s)	Random Sampling	Rare Combination (Type 1)	Occasional Combination (Type 2)
	Non-Random Sampling	Very Rare Combination (Type 3)	Frequent Combination (Type 4)

Figure 4.3 Matrix crossing types of sampling scheme by research approach

(Onwuegbuzie and Collins, 2007, p. 284)

Like the vast majority of both qualitative and quantitative studies use non-random samples (Type 4) (as shown in Figure 4.3), this type of sampling is going to be

utilized in the current study. The reason for that is very much related to the characteristics of Type 4 which aims to obtain insights into a phenomenon, individuals, or events by selecting individuals, groups, and settings for this phase that maximize understanding of the underlying phenomenon. Once the sampling type is acknowledged and the time orientation of the study (i.e. concurrent vs. sequential) is defined, the relationship between the qualitative and quantitative samples needs to be identified by the researcher. The relationship can be identical, parallel, nested, or multilevel (Onwuegbuzie and Collins, 2007).

An identical relationship indicates that exactly the same sample members participate in both the qualitative and quantitative phases of the study (e.g., administering a survey of reading attitudes and reading strategies to a class of fourth graders that contains both closed- and open-ended items, yielding quantitative and qualitative phases that occur simultaneously). A parallel relationship specifies that the samples for the qualitative and quantitative components of the research are different but are drawn from the same population of interest (e.g., administering a quantitative measure of reading attitudes to one class of third-grade students for the quantitative phase and conducting in-depth interviews and observations examining reading strategies on a small sample of third-grade students from another class within the same school, or from another school for the qualitative phase). A nested relationship implies that the sample members selected for one phase of the study represent a subset of those participants chosen for the other facet of the investigation (e.g., administering a quantitative measure of reading attitudes to one class of third-grade students for the quantitative phase and conducting in-depth interviews and observations examining

reading strategies on the lowest- and highest-scoring third-grade students from the same class). Finally, a multilevel relationship involves the use of two or more sets of samples that are extracted from different levels of the study (i.e., different populations).

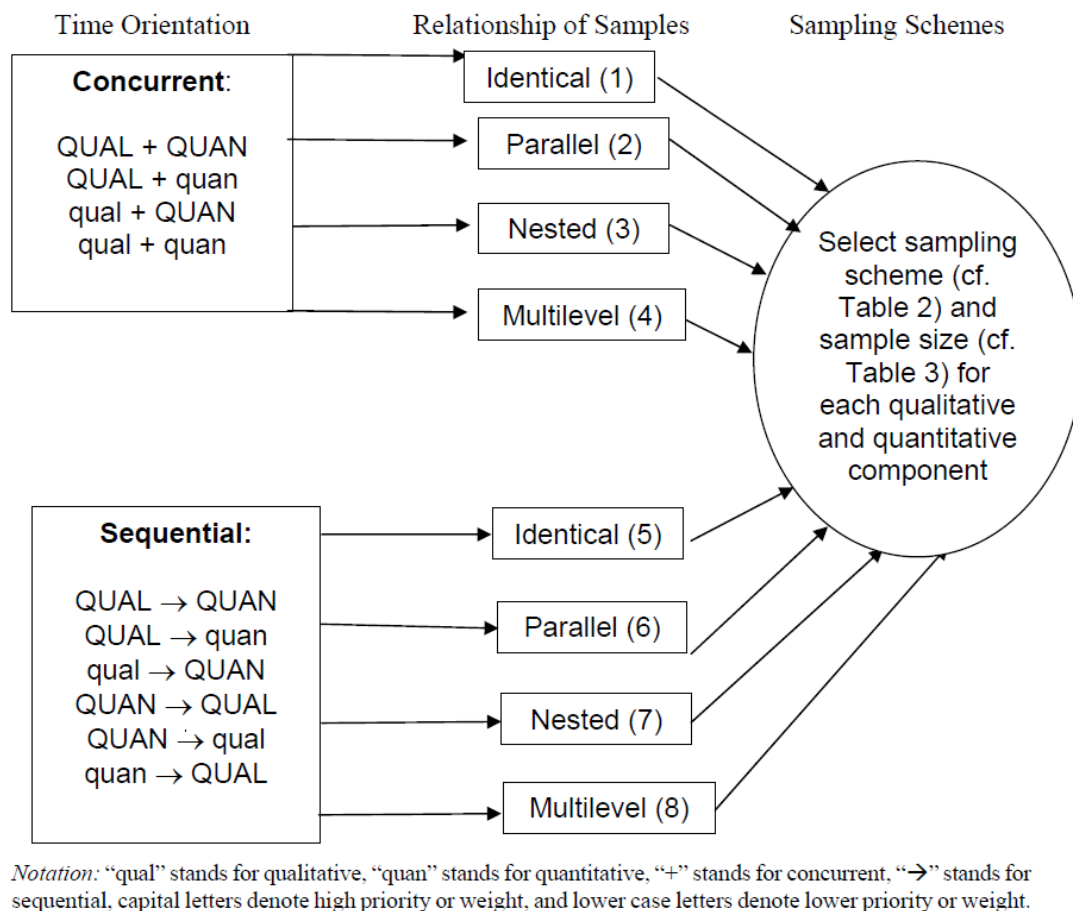


Figure 4.4 Relationship of samples (Onwuegbuzie and Collins, 2007, p. 294)

In the current study, focus groups are the samples and rather than randomly, they are selected according to the initial results of the quantitative analysis. The selection process is defined with the help of ArcGIS software program. Those focus groups are aimed to represent both the developed and less developed regions and provinces of

Turkey so that focus group discussion would provide insights into Turkish local and regional economic growth. Because the aim of the qualitative method is to obtain insights into the core concepts of local and regional development in Turkey, sampling focuses on policy makers in Turkey. Unfortunately, although policy informers, i.e. academics, also have very important positions in Turkey, most of the time they do not or cannot participate in the decision making process. Therefore, the influences of academics are not considered in this study. The sampling frame is divided into strata that are the regional levels in this case and the interviewees are going to be drawn from regional development agencies in Turkey (multilevel-8 in Figure 4.4). Chapter 2: Economic Development in Turkey has given more details about the decision making mechanism in Turkey and the role of regional development agencies. The role of the State Planning Institute in Turkey is considered in the interview process since it is the main planning institution in Turkey.

4.5.2.2 Sample size and the questionnaires

The choice of sample size is as important as is the choice of the sampling scheme because it also determines the extent to which the researcher can make statistical and/or analytic generalizations. In this respect, the question of ‘How many interviews does the researcher need?’ is one of the main questions that the researcher should ask himself. Sandelowski (1995, p.179) explains this issue by saying “...a common misconception about sampling in qualitative research is that numbers are unimportant in ensuring the adequacy of a sampling strategy”.

There are twenty six NUTS 2 levels in Turkey and the regional development agencies (RDAs) are aimed to be built at these levels. However, there are only twelve of them established yet. Multiple RDAs are selected to allow a holistic and meaningful understanding of the local and regional economy in Turkey. Furthermore, they provide opportunities to strengthen results and they can be used in conjunction with other forms of evidence such as documents, interviews and observations (Yin, 2003). The case studies are going to be identified according to the success criteria of the initial results. As stated earlier, the interviews are going to be done with focus groups that have been identified as ‘movers and shakers’ in economically and socially differentiated areas of Turkey. The aim here is to pick not only the successful regions or provinces but also the ones that are lagging behind regional and national economy. Therefore, the selection criteria are defined according to the initial results of the quantitative part. The selection process is undertaken with the help of ArcGIS software program.

In terms of questions aimed to be asked during focus group discussions, open ended and semi-structured questions are going to be considered since they are more flexible and the expected responses are going to be more complementary rather than being strict. Table 2.1 shows the structure of focus group questions. A simple questionnaire collects factual information about a sample population which informs and helps towards the structure of the second stage of the research process, namely the in-depth interviews (Valentine, 2005). However, before the questionnaire is administered, it is necessary to ensure that the research questions have been well thought out according to the aims and objectives of the thesis. In that respect, the structure of the focus

Primary Research Question: How is the local and regional economy in Turkey constructed and developed?				
Detailed sub-question	Source	Questions to ask interviewee	Observation focus	Document
What are the current dynamics regarding local and regional economy? What's planner discretion? Does it vary?	Governor of the province, planners	What is the current policy in place regarding the local and regional economy in planning and management process? What is discretionary and what is prescribed? What are the legislative requirements?	Analyse	Government policy and legislation
What is the method of planning? Is this the same as used in other regional development agencies? What are the primary objectives of relevant government agencies?	Governor of the province, planners	How does this organisation go about planning with or involving those dynamics in the decision making process? Does it include all the aspects of the place? Are there priorities? What are excluded in the planning process?	Compare	Government policy and legislation, annual reports, corporate plans, organisational charters
How do the people affect policy and method of planning? How is it perceived?	Governor of the province, planners	How are people affected by the planning process? How have these processes changed and what impacts have these changes had?		Annual reports, policy documents

Table 4.1 Structure of the interview questions

group discussions is defined in three detailed sub-questions: How is the local and regional economy in Turkey constructed and developed? The aim is to talk to governor of the province, if possible, and the planners which are based in either regional development agencies or city councils. Following the detailed sub questions, questions for the interviewee have been defined accordingly. Here, observation focus has been identified as analysing and observing. It is expected that the researcher will get some policy documents to gain more understanding in the discussions. During the interviews, some questions are designed to elicit opinions and beliefs, resulting in some open-ended questions such as how people are affected by the planning process. Also during the interview, it is important to remain mentally alert, in order to take advantage of unexpected information or details that may occur within the conversation (Dunn, 2000). A researcher has to maintain a fine balance between speaking too much and not providing enough support, as well as the standard conversational prompts to encourage and convey an interest in the interviewee answers.

4.6 Ethical issues

Before primary data collection can take place, it is necessary to evaluate the ethical considerations to ensure that the needs (such as anonymity) are considered and that the researcher outlines the guidelines in place to remove any concerns or doubts. The development of the research methodology and in particular the design of the primary data collection tool is founded on the central tenets of the ESRC Research Ethics Framework which are:

1. Research should be designed, reviewed and undertaken to ensure integrity and quality
2. Research staff and subjects must be informed fully about the purpose, methods and intended possible uses of the research, what their participation in the research entails and what risks, if any, are involved
3. The confidentiality of information supplied by research subjects and the anonymity of respondents must be respected
4. Research participants must participate in a voluntary way, free from any coercion
5. Harm to research participants must be avoided
6. The independence of research must be clear, and any conflicts of interest partiality must be explicit

(ESRC, 2005:1)

Interviewees are going to be contacted by email before the interview and they are going to be informed about the aim of the study. They are kindly asked whether they would like to get involved in the study or not. Since research participants are going to be policy makers, the confidentiality of information is highly respected. Although it is

aimed to record each interview, it is not going to be compulsory in case interviewees do not want it. In relation to this issue, it is also very important to explain that the research is undertaken independently in order not to create any conflict of interest. Interview questions are structured so that the rationale behind the questions can fit the main research question of the thesis. Once the interview questions are asked, interviewees are going to be informed about the theories used in the study and the variables picked to be able to run the model. They are then asked whether those variables are representative in their areas. To make this process simple and clear for them, the initial result of the quantitative part is going to be represented (with maps and figures) to the interviewees to invite their ideas and comments.

4.7 Foreseen Problems during the Research Design

Since both quantitative and qualitative methods are utilized in the current research study, it is expected to have some methodological problems during each stage. This section explains the foreseen problems and the ways in which these problems could be handled during the research.

4.7.1 Problems of the Quantitative Analysis

As a main part of the quantitative analysis, secondary data collection is the most important process in the whole research study. Fortunately, the Turkish Statistical Institute (TUIK) provides most of the information at the regional and national level in Turkey which eases the data collection process. Also, TUIK updates their database

regularly which increases the quality of their database system. Moreover, recent journals and the reports through the EU accession are also the key resources in the current study. Because the research problem tries to explore dynamics of local and regional economic development in Turkey overall, using those secondary data resources offers various advantages to the researcher such as exploring the research question without having to go through the process of collecting the data at the local and regional levels in Turkey.

However, there are some limitations of the secondary data in the current study. The first limitation is about the lack of the familiarity of the data. Since the data are taken from TUIK, not generated by the author, he cannot be familiar with the structure and contours of the data. Therefore, in each data collection process, all the information regarding to metadata, that is the data about data, is going to be pursued to check the data generation process and the variables used. Another limitation is about having no control over data quality. Although the data are taken from major institutions in Turkey, there is always a problem with data quality. To overcome this problem, many alternative indicators are going to be utilized in order to find out the best variable of a specific theory. This process is going to be done by using special statistical methods such as regression and principal component analysis which are explained in detail in Chapter 5: Selection of Variables. Another issue is about the absence of key variables which is similar to the previous limitation. This time the problem is not about deciding the best variable amongst alternative ones but appointing or quantifying the most appropriate indicator. In order to overcome this issue, the theories are going to be examined very carefully as the variables are extracted from them. The last issue is

about the scale of the data. Because the data are generally generated at regional and national scales in Turkey, the author is going to utilize some simple interaction models to get the data needed for the provincial scale. All these analyses are undertaken under the supervision of supervisors and other external academics.

4.7.2 Problems of the Qualitative Analysis

During the interview process, the author may come across some obstacles and it is very important for him to foresee those before he goes to the field. The first problem is related to the integration of the quantitative and qualitative part. The crisis of integration refers here to the extent to which combining qualitative and quantitative approaches addresses adequately the research goal. Although the qualitative part is complementary, the focus group interview is also aimed to explore dynamics of local and regional economic development in Turkey. Once some information is extracted from the data analysis, the interviewees are going to be informed about the result of the quantitative part of the study so that there will not be any false leading. The second problem is about the technicality of the quantitative part. Because the author is going to use some statistical analyses and econometric models to explore the research question, the results cannot be simplified for the interviewees. Therefore, the language is going to be very simple and some illustrations such as maps and figures are going to be represented to overcome this problem. The last issue is about the politics. There can be some contradictions and paradoxes that come to the fore when the quantitative results show that some provinces might show bad indicators. That can create a comparing attitude in the participant. The participant may argue that their province

should have been better than the picture that the researcher has. The most important thing in such a case is related to the positionality of the researcher. Because the author is exploring the situation from outside, he is not going to get involved in any unplanned discussions that can create such tensions. Also the participants are going to be asked whether they feel comfortable in case they are recorded during the interview. Unfortunately, since the interview processes are contaminated by politics that in terms of people's willingness to speak, it is expected that some issues of freedom of expression will arise. In that case, the researcher should be ready to take notes while conducting the interview with the participants.

4.8 Conclusion

The whole process shows that there is a strong connection between quantitative and qualitative methods in the current study. These methodological approaches are considered not individually but as complementary. Qualitative research is followed after quantitative research by canvassing initial results and facilitating discussions. Although there is a distinction between quantitative and qualitative research in terms of methodological norms and practices, the current study suggests that such dualism is applied research.

After the collection of the field data, the author returns to Birmingham to begin the analyses. This stage involves transcribing all interviews in Turkish, identifying the most relevant issues and translating those issues into English and beginning to analyse them. The exciting aspect of this combined methodology is that a researcher can

create tailored and/or more complex sampling designs. Also, it is possible for a sampling design to emerge during a study in new ways, depending on how the research evolves. However, there are also some issues that need to be raised in the methodology part. As stated earlier, although there are twenty six NUTS 2 levels in Turkey and the regional development agencies are aimed to be built at this level, only twelve of them are established during the interview process. Therefore, the researcher has to make a decision while choosing his case studies. Since these institutions are newly being established in Turkey, some of them still do not have any project to work on. Also the people that have been working in those development agencies are newly appointed. Therefore, the researcher is aware of the fact that although he is going to talk to the 'shakers and movers' in some provinces, they may lack experience or they may not be very familiar with the region that they have been working on. In this respect, the timing of this research study creates some limitations for the researcher. However, since there has not been any similar study done in Turkey before, current research is very valuable to start with. In the following years, this study might be done in other provinces and regions which will have various institutions eventually. In this way, it is very likely to create a bigger picture to understand the dynamics of local and regional economic development in Turkey.

5 EXPLORING THE DRIVERS OF REGIONAL GROWTH: SELECTION OF VARIABLES

5.1 Introduction

Seven sets of theoretical prepositions that promote regional economic development were identified in Chapter 3. From seven regional development theories, eight hypothesised drivers of regional growth were identified. They were technological leadership; knowledge creation and access to information; local integration of small firms; institutional support and institutional thickness; human capital; power of large corporations; market accessibility; and local sectoral specialization. In Chapter 4, a general overview of Turkish economic development was examined to identify some of the theories that informed the development of regional economic policy in Turkey. This chapter describes how those hypothesised drivers could be measured in the Turkish context. This chapter explores the selection of a set of variables in Turkey that can be used to examine the relationship between theory and Turkey's functioning economic geography. The chapter also highlights the problems that are identified in the selection variables and how they are overcome. By the end of this chapter, each driver identified from the theory will be supported by a set of proxy measures that will be calibrated in order to run a regression in the following chapter.

5.2 Drivers of Regional Economic Growth

Existing research on regional economic growth has highlighted the importance of eight key drivers (Taylor, 2011, 2009; Plummer and Taylor, 2001a; Gleaser, 2000). Taylor (2011, 2009) refers to two broad bodies of theory that currently inform processes of change. In a study of regional economy developed in Australia, Plummer and Taylor (2001a, 2001b) examined the endogenous growth theory emanating from economics and the institutionalist theories of economic geography and related disciplines at the regional level. In those studies, Plummer and Taylor (2001a) had explained six institutionalist theories of local and regional economic development (the competitive advantage, learning regions, flexible specialization, product cycle, growth pole and enterprise segmentation models) were examined and eight drivers were identified in these six models: technological leadership, knowledge creation and access to information, local integration of small firms, institutional support and institutional thickness, human capital, power of large corporations, market accessibility and local sectoral specialization (see Table 5.1). Gleaser (2000) explained a similar list of five drivers of change in the economists' endogenous growth theory approach to regional development: technological change and innovation, human capital, agglomeration and externalities (effectively local integration), knowledge spillovers, and sectoral specialization/diversification.

Theoretical dimension	Description of variable
Technological leadership at the enterprise level	An index of the presence of high technology industries
Knowledge creation and access to information	An index of access to information
Locational integration of small firms	Percentage of SMEs
Institutional thickness	Industry assistance
Human capital	Percentage of working population without a primary school degree
Power of large corporations	Index of corporate control
Market accessibility	Index of intermediate goods market access
Local sectoral specialisation	Index of specialisation

Table 5.1: Growth drivers (Taylor and Ersoy, 2011)

A principal element of the analysis presented in this chapter is to calibrate the theoretically derived drivers of local economic growth so that they are appropriate to Turkey. The main challenge in calibrating the theoretical dimensions is to describe what these dimensions correspond to in the Turkish context. Each of the eight drivers identified from theory, which are shown in Table 5.1, are interpreted in the Turkish context in the following sections.

5.2.1 Technological Leadership at the Enterprise Level

Technology is probably one of the most important factors in understanding the dynamics of firms in an economy. New technology, including high technology, is a source of competitive advantage for firms that can bring growth to the places where they are located. The term “high technology” is a commonly used concept, referring to enterprises and industries that produce technologically advanced products. It is a term used:

“... broadly and interchangeably to refer to firms and industries whose products or services embody new, innovative and advanced technologies developed by the application of scientific and technological expertise...” (Keeble and Wilkinson, 1999, p.3)

High tech industries rely on scientists and engineers not only to create new products and create new demand, but also to make firms competitive through innovation (Malecki, 1997). Studies of technology and innovation (Archibugi and Michie, 1995; Aydolat and Keeble, 1988; Jaffe, 1986; Kline and Rosenberg, 1986; Ratti *et al.* 1997) not only explore macro level contemporary industrial and economic change but also provide very important insights into local and regional economic development.

However, in spite of the extensively growing literature on technology oriented businesses, only a limited number of studies have been undertaken to assess their economic contribution (Tamasy, 2007). Also a growing number of studies about

medium and low-tech sectors, suggest that the growth of high-tech industries for economic development undervalues or neglects the importance of traditional manufacturing sectors which can also be equally high value-adding (Hirsch-Kreinsen *et al.*, 2005; Sandven *et al.*, 2005; von Tunzelmann and Acha, 2005; Bryson *et al.*, 2008; Freddi, 2009). Moreover, with growing worldwide awareness of environmental protection, “green” production and “green” collar jobs have become important issues for a range of manufacturing sectors which require high-tech production techniques.

For the present part, it is important to provide a general definition of the concept of high technology and technological leadership in the local context of Turkey’s regional economies. To start with, some of the definitions of the concept of ‘high technology’ will be given. Later on, local context and other manufacturing sectors will be explained in the Turkish context.

When Butchart (1987) first used R&D intensity indicators for UK sectors to identify a set of high tech industries (see Table 5.2), some of the sectors were neither research intensive nor technologically dynamic (Keeble and Wilkinson, 1999). Today, there are still classification problems for some industries. Once industries are categorised as high technology, all establishments in such industries are *de facto* considered to be high technology (Markusen *et al.* 1986; Thompson, 1988a; 1988b). However, industries can exhibit a wide range of technologies and behaviours within those sectors (Dosi, 1988; Storper and Walker, 1989) and it is very important to understand the characteristics of each industry before considering them as ‘high-tech’.

Standard Industrial Classification (1980) Activity Heading and Industry Description
2514 Synthetic resins and plastic materials
2515 Synthetic rubber
2750 Pharmaceutical products
3301 Office machinery
3302 Electronic data processing equipment
3420 Basic electrical equipment
3441 Telegraph and telephone apparatus and equipment
3442 Electrical instrument and control systems
3443 Radio and electronic capital goods
3444 Components other than active components mainly for electronic equipment
3453 Active components and electronic sub-assemblies
3640 Aerospace equipment manufacturing and repairing
3710 Measuring, checking and precision instruments and apparatus
3720 Medical and surgical equipment and orthopaedic appliances
3732 Optical precision instruments
3733 Photographic and cinematographic equipment
7902 Telecommunication services
8394 Computing services
9400 Research and development services

Table 5.2: High-technology industries in the UK (Butchart, 1987)

There are two commonly used indicators to define high-tech industries; research and development (R&D) intensity and technical workers as a percentage of the workforce. While R&D intensity is intended to capture the rapid rate of change in products and technologies and the importance of technological effort within an industry or firm,

technical (or technical and professional) occupations as a percentage of the labour force, is intended to measure the technical inputs into production in addition to R&D. (Malechi, 1997, pp. 81-82).

The OECD (1995), for example, classified only six industries as high technology based on R&D intensity: aerospace, computers and office equipment, communications equipment and semi-conductors, electrical machinery, pharmaceuticals and scientific instruments. It has also been suggested that some service industries in which R&D intensity was high, should also be included such as computer programming, data processing and other similar services, research and development laboratories, management consulting and commercial testing laboratories (Browne, 1983). In 2005, the OECD produced a classification of 'High Technology Manufactures' that reflected this wider definition of 'high tech' and knowledge based industries which is used widely in many countries (see Table 5.3).

Apart from the OECD classification, there is a growing number of studies about the medium and low-tech manufacturing sectors and their contribution to local economies (Hirsch-Kreinsen *et al.*, 2005; Sandven *et al.*, 2005; von Tunzelmann and Acha, 2005; Freddi, 2009). In some cases, the development of medium or low tech manufacturing sectors is dependent on the existing division of labour and specialisation across countries and the added value of high tech manufacturing sectors can be low in the local context. Moreover, companies located in developed market economies find it difficult to compete with low-cost economies on the basis of price, but they may be able to compete on the basis of expertise, customised products or in high-value added

niche markets and yet, not all segments of an economic sector experience the same level and type of global competition. Therefore, it is vital to explore how radical innovations generated by high-tech sectors and the existing knowledge base of low-tech industries can be combined and blended to generate a mutual process of further development (Freddi, 2009). To sum up, these studies explain that low tech firms can also create growth and high tech and low tech firms can combine synergistically to create growth.

High Technology Manufactures
2423 Manufacture of Pharmaceuticals, Medical Chemicals and Botanical Products
29 Manufacture of Machinery and Equipment N.E.C
30 Manufacture of Office, Accounting and Computing
31 Manufacture of Electrical Machinery and Apparatus N.E.C
32 Manufacture of Radio, TV and Communication Equipment
33 Manufacture of Medical, Precision and Optical Instruments, Watches and Clocks
34 Manufacture of Motor Vehicles, Trailers and Semi Trailers
352 Manufacture of Railway and Tramway Locomotives and Rolling Stock
353 Manufacture of Aircrafts and Spacecraft
359 Manufacture of Transport Equipment N.E.C
64 Post and Communications
65 Financial Intermediation, Except Insurance and Pension Funding
66 Insurance and Pension Funding, Except Compulsory Social Security
67 Activities Auxiliary to Financial Intermediation
71 Renting of Machinery and Equipment Without Operator, of Personal and Household Goods
72 Computer and Related Activities
73 Research and Development
74 Other Business Activities

Table 5.3: High Technology Manufactures (OECD, STAN database, 2005)

In Turkey, technology has started to emerge as a crucial element in development during the last decade. Governments started to encourage technology oriented projects in Turkey by providing a range of incentives. In 2001, the ‘Technology Development Zones’ Law was enacted. This act meant that high tech companies were exempt from income and corporation taxes. It has enabled companies to reduce their wastewater costs in the zones that operate a wastewater purification facility. It provides financial support for those who seek a contribution to the expense of procuring land for the establishment of the zone, the infrastructure expenses and the expenses to construct an administrative building 'which cannot be met by the Managing Companies’.

In 2007, the *Sanayi Tezleri* (SAN-TEZ) program was proposed by the government. The program aims to support the total cost of a high-tech project in collaboration with participant industries. In 2008, the ‘Supporting Research and Development Activities’ Law was enacted. The Law provides redemption of expenditures on R&D and innovation projects as well as the provision of financial incentives for those who cannot benefit from this allowance because they have not earned enough in the relevant accounting period; provision of income tax withholding incentives for those (except public sector personnel) working in technology or related centres (exemption of income tax is 90% for those having a PhD degree and 80% for the others); supporting the insurance premium of the employer; stamp duty exemption; and finally a ‘Technopreneurship Capital Subsidy’ provision up to 100.000 Turkish Lira.

Unfortunately, studies of the impact of high-tech manufacturing in the Turkish economy are far fewer than in many other countries. Eraydin and Köroglu (2005)

identified a significant inconsistency in the industrial clusters of Ankara, Denizli and Bursa, in terms of innovation and the degree of integration into the global economy. They found that firms that were more connected with global networks were more innovative than firms that were strongly tied into local networks. This raises some concerns about the delivery of government incentives and the ways firms operate in the value chain. As yet, studies are very limited and are focused on the so-called Anatolian tigers (the provinces of Gaziantep, Denizli, Konya) and some other provinces such as Eskisehir, Istanbul, Ankara and Bursa (Gürbüz, 2001; Özdaslı, 2002; Armagan, 2003; Çakmaklısoy, 2001; Gökalp, 1998; Çakır, 2001; Varol, 2002; Bugra, 1998).

High Technology Manufactures
2423 Manufacture of Pharmaceuticals, Medical Chemicals and Botanical Products
29 Manufacture of Machinery and Equipment N.E.C
30 Manufacture of Office, Accounting and Computing
31 Manufacture of Electrical Machinery and Apparatus N.E.C
32 Manufacture of Radio, TV and Communication Equipment
33 Manufacture of Medical, Precision and Optical Instruments, Watches and Clocks
34 Manufacture of Motor Vehicles, Trailers and Semi Trailers
352 Manufacture of Railway and Tramway Locomotives and Rolling Stock
353 Manufacture of Aircrafts and Spacecraft
359 Manufacture of Transport Equipment N.E.C
64 Post and Communications
72 Computer and Related Activities
73 Research and Development

Table 5.4: High Technology Manufacturing in Turkey (OECD, 2005)

To have a comparable selection of the high tech sectors in Turkey, high tech manufactures of the OECD (2005) is used in this present study (Table 5.4). However,

since Financial Intermediation, Except Insurance and Pension Funding (65); Insurance and Pension Funding, Except Compulsory Social Security (66); Activities Auxiliary to Financial Intermediation (67); Renting of Machinery and Equipment Without Operator and of Personal and Household Goods (71); and Other Business Activities (74) are associated with ‘Finance’ and they involve less or no intense R&D activities, they are taken off from the table.

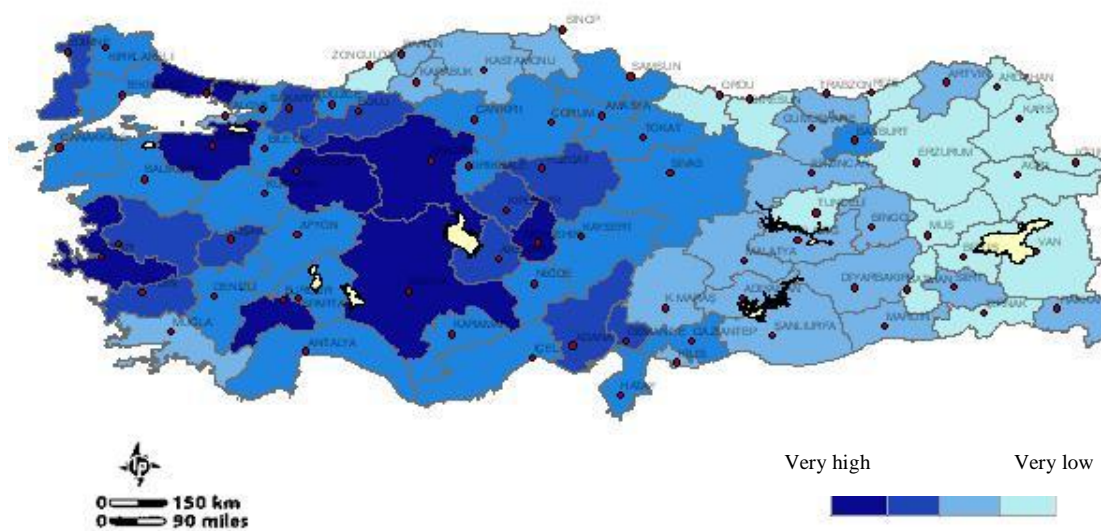


Figure 5.1 Proportion of employment of high-tech manufacturers in Turkey

The data used to create this index of technological leadership at the enterprise level are taken from Turkey’s unpublished 2002 General Census of Industry and Business Establishments, First Stage Results of the National Total (Local Units and Employment at the City Level). The measure here is the proportion of employment in a region in these activities. Unfortunately, this dataset is the most recent data available at the provincial level in Turkey for such analysis. Fortunately, the quantitative analysis in this research rests upon the validity of the qualitative analysis and hence,

focus groups, for instance, will reassess the indicators of the quantitative analysis in connection with the data validity and reliability.

The distribution of the proportion of employment in those activities is mapped in Figure 5.1. The figure shows that the high-tech manufacturers are concentrated around the major provincial centres in Turkey; with Istanbul, Ankara, Izmir, Bursa, Eskisehir, Konya, Nevsehir and Isparta having the highest proportion of employment in those activities. This technological leadership also extends to the provinces adjacent to or within the hinterlands of the eight core provinces. These emerging provinces include Edirne, Sakarya, Bolu, Yozgat, Kirsehir, Aksaray, Manisa, Afyon, Usak, Adana and Osmaniye. They can be interpreted as having the potential to emerge as new foci of high-tech industry in the future.

5.2.2 Knowledge Creation and Access to Information

The second theoretically identified driver of local economic growth is access to information and knowledge. Information and knowledge provides opportunities for knowledge creation and it is now widely accepted that information and knowledge play important roles in regional economic development. In theories of the knowledge economy, knowledge industries have been seen as the main drivers of the advanced economies and are of national significance (Machlup, 1962; Drucker, 1969; Toffler, 1970; Reich, 1991; Starbuck, 1992). Although the idea of the knowledge economy has been criticised in the social sciences (Ginzberg, 1976; Collins, 1979; Applebaum and Albin, 1990), the economic significance of knowledge based services has become

more important as markets expand (Teece, 2003). This raises the question of what industries are 'knowledge intensive' or 'knowledge based'?

Much of the literature on knowledge intensity and services has concentrated on knowledge intensive business services (KIBS) (Bryson *et al.*, 1992; Hertog, 2000; Larsen, 2001; Lu and Sexton, 2006; Miles, 2007; Miozzo and Grimshaw, 2005) which in general classify knowledge in terms of science and technology (Miles *et al.* 1995, Bilderbeek *et al.*, 1998) or social systems and institutions (Tether and Swann, 2003). In this respect, it is crucial to exclude some industries from KIBS as their technology and products are sufficiently stable to have become predictable and routine (Brint, 2001). From Brint's observation, it follows that only three types of industries are 'knowledge-centred'. First there are industries in which the speed of change is an important factor. These are the industries in which technological change is fast moving. Second are those industries in which new issues are susceptible to expert analysis related to unstable or unpredictable environments (as in the political and judicial arenas). Third are industries in which the primary activity is providing services to clients with the knowledge that underpins the service being embedded in the providers themselves, as in the medical, educational and legal services industries. Though diverse in function and technologies, the common characteristic of these industries is that their activities require a relatively high intellectual knowledge and depend less on the traditional production factors of labour and land. To construct an index of accessibility to information and knowledge, the estimates of knowledge worker numbers are built into an interaction model that measures "knowledge at a distance".

A key aspect of the present study is to measure knowledge creation and access to information at NUTS 3 level in Turkey. To do that, the total numbers of ‘knowledge workers’ at each province have been calculated based on the International Standard Classification of Occupations (ISCO) classification that is one of the main international classifications for which the International Labour Organisation (ILO) is responsible. The current version of the International Standard Classification of Occupations, ISCO-88⁷², provides a system for classifying and aggregating occupational information obtained by means of population censuses and other statistical surveys, as well as from administrative records. ISCO 88 gathers jobs together in occupations and more aggregate groups mainly on the basis of the similarity of skills required to fulfil the tasks and duties of the jobs. The Turkish Statistical Institute provides the classification for Turkey and the ISCO 88 classification is available from them. However, since they no longer provide data at NUTS 3 level, 2008 ISCO 88 data are taken from the Turkish Statistical Institute at the NUTS 2 level and then calibrated to NUTS 3 level by using the SIC 2002 data.

The ISCO 88 classification divides occupations into 10 categories⁷³ and people classified in the first two categories have been incorporated into the study considering that they are knowledge workers because of the definitions of the categories. According to the ILO, the first major group includes ‘Legislators, Senior Officers and Managers’ who determine, formulate, direct or advise on government policies, as well as those of special-interest organisations; formulate laws, public rules and regulations;

⁷² ISCO 88 was adopted by the 14th ICLS in 1987 and approved by the ILO Governing Body in 1988

⁷³ Legislators, senior officials and managers; professionals; technicians and associate professionals; clerks; service workers and shop and market workers; skilled agricultural and fishery workers; craft and related trades workers; plant and machine operators and assemblers; elementary occupations; and armed forces

represent governments and act on their behalf; oversee the interpretation and implementation of government policies and legislation, or plan, direct, and coordinate the policies and activities of enterprises or organisations, or their internal departments or sections⁷⁴. The second major group consists of ‘Professionals’ who increase the existing stock of knowledge, apply scientific or artistic concepts and theories, teach about the foregoing in a systematic manner, or engage in any combination of these three activities⁷⁵. Therefore, these two major categories have the most potential for people working as knowledge workers. Unfortunately, the justification for selecting the first group is not as robust as the second group because it is difficult to measure to what extent legislators, senior officers and managers contribute to knowledge creation. However, due to their potential of implementing government policies and coordinating activities of enterprises or organizations, they are included in the analysis.

In Turkey, information is rapidly becoming a vital commodity as levels of protection are reduced and the economy is restructured and becomes more fully internationalised. Good access to information is essential for regional economies within Turkey to make their fullest contribution to national growth. In the last decade, the Turkish government has undertaken a number of initiatives to meet the challenges of the emerging global knowledge economy. Although those initiatives such as the eCommerce Council, TUENA, Information Infrastructure Master Plan, eTurkey Initiative, Vision 2023, e-Transformation Turkey Project are not considered under a

⁷⁴ ILO official website

⁷⁵ *ibid*

comprehensive knowledge economy agenda, they are some attempts to encourage this agenda⁷⁶.

In the current study, an index of different provinces access to information can be constructed by calibrating a simple interaction model. This calibration is made on the assumption that face-to-face meetings are the most important mechanisms for the transfer of information (McDermott and Taylor, 1982). It is true that the electronic exchange of information is growing in importance but, for decision making purposes, direct personal contact continues to be of overwhelming importance. To calibrate the interaction model, ‘size’ (S_j) has been measured as the number of professional in each of the provinces, since these are the sections of the national and regional labour forces that use and generate the most information.

$$\sum_{j=1}^n E_{ij} = \frac{\sum_{j=1}^n \frac{S_i}{d_{ij}}}{n}$$

where: ‘S’ the number of professional and administrative employee

‘d’ the distance between centres

‘i’ and ‘j’ are pairs of provinces

⁷⁶ See Turkey, Knowledge Economy Assessment Study, March 2004, World Bank.

After the numbers of knowledge workers were generated, the data have been overlapped with ‘the accessibility index’ of each city in Turkey (Figure 5.2). The accessibility index is created by considering the time distance between each city in Turkey. This is undertaken by the development of a road distance matrix⁷⁷ and flight distance⁷⁸ of the cities that have airports. To explain the distance in time, the road distance is converted using a speed of 80km/h. The map shows that the darkest colours are the most accessible cities in Turkey and the lightest colours are the most remote cities in Turkey. The knowledge creation and accessibility measure is taken from a simple interaction model in which the amount of information activity at a place is measured as employment in professional and managerial jobs, and the distance between places is measured as time distance (Figure 5.3). The figure shows that the darkest coloured provinces are the most knowledge intensive and accessible cities. In contrast, the lightest coloured provinces contain the least knowledge.

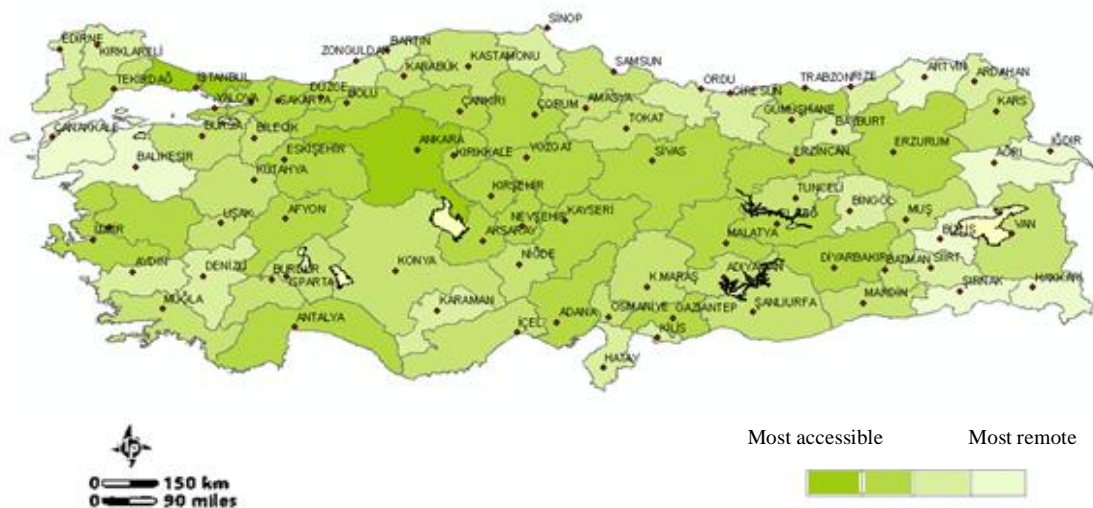


Figure 5.2: Accessibility map of Turkey

⁷⁷ The matrix is taken from Turkish General Directorate of Highways on 01.01.2009.

⁷⁸ The data are taken from the website of Turkish Airlines in November 2009.

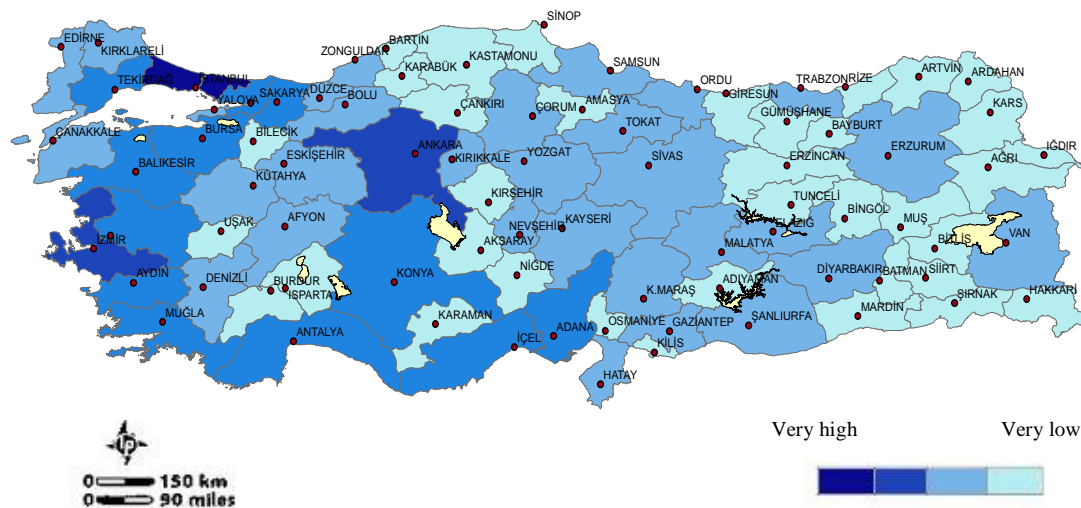


Figure 5.3: Knowledge creation and accessibility to information in Turkey

The regional capital cities of İstanbul, Ankara and İzmir are clearly central to Turkey's information economy and Van, Erzurum, Trabzon, which might popularly be considered to be remote, are more accessible to the national information economy than parts of eastern Anatolia and the eastern Black Sea region. There are significant parts of middle Black Sea, south east and east Black Sea region that appear to be excluded from the information economy. In short, based upon the measures constructed here, access to Turkey's information economy is much patchier than accessibility in other contexts. The implication is, therefore, that only a very limited number of locations which would certainly appear not to include all capital cities will benefit from the current restructuring and internationalisation of the Turkish economy that is essentially information dependent. When the two figures are compared, it is seen that there are different development patterns that create spatial versus functional transformations in Turkey. This can be explained in three different categories.

First there is a significant difference in the intensity of knowledge workers in metropolitan areas, i.e. İstanbul, Ankara and İzmir. İstanbul, Ankara and İzmir also have more connections with the global economy and hence they are more closely associated with economies of scale and agglomeration economies. These cities have become the attraction areas for high skilled and well paid knowledge workers. Therefore, it is not very surprising to see knowledge workers concentrated in these cities.

Second, there are some cities that have considerable knowledge intensity. This can relate to the concept of ‘borrowed size’ (Phelps *et al.*, 2001) which explains that spatial externality fields have expanded over time so that small firms can locate in smaller settlements and yet access specialized labour and informational external economies of nearby larger urban areas. Tekirdağ, Yalova, Sakarya are good examples of this process. However, for some cities such as İçel, Antalya, Muğla, Aydın, Manisa, it is not very easy to make a satisfactory explanation by only considering ‘borrowed size’. Nevertheless, it is interesting to observe that these cities are seaside locations with significant tourist attractions. Therefore, it can be argued that geographical characteristics and the quality of space can also affect the concentration of knowledge workers. To some extent, this explanation also resonates with Florida’s ‘Creative Class’⁷⁹ ideas as well.

Third, the key provinces are also intermediates and bridges in the knowledge economy. Not only do they play significant local and regional roles in Turkey, they

⁷⁹ Richard Florida (2005) *The Rise of the Creative Class*, Rutledge.

also link Turkey and its regional economies into the global economy. Denizli and Çorum are very good examples for this global connection. This can be explained by the fact that endogenous potentials of these provinces are much more significant than other provinces (Eraydin, 2002a). Therefore, these provinces might constantly reinvent themselves, moving from one field of specialization to another. Skills may well be a crucial part of this reinvention as skilled workers react more speedily to painful economic shocks (Welch, 1970).

Addressing the accessibility question is vital to welding Turkey into one nation. What the preceding discussion highlights is the different dimensions of geographical isolation that affect various parts of Turkey. On the one hand, and defined in very general terms, there are broad dimensions of accessibility that differentiate between the eastern and western parts of the country and between metropolitan, rural and remote areas within it. On the other hand, however, there are pockets of isolation in the information economy context even in those generally accessible middle Anatolia regions, while Van and Erzurum in this same information economy context would appear to be somewhat more integrated into the national economic system. Microeconomic reform, deregulation and privatisation in the transport and communications sectors of the economy, together with tourism will affect the issues of accessibility within Turkey. It can be argued that these changes are likely to exacerbate rather than ameliorate the problems amounted with relative isolation. The analyses here are, however, essentially a cross section of evolving patterns produced by dynamic processes within the Turkish economy and society.

According to the analyses, it would seem reasonable to assume that regions that are least accessible are likely to be the least attractive locations for future manufacturing – either locally developed or brought in from elsewhere. Also it would seem equally reasonable to assume that regions with good access to information would benefit economically in the future. Places with good access to intermediate goods and information are, therefore, likely sites of future secondary industry, decision making and control. Places with good access to intermediate goods alone are likely to become branch plant economies without control over decision making. Places with access only to information might only become service nodes of primary sector activities (farming, fishing, forestry and mining) without secondary manufacturing and with their consumer requirements being imported from other localities. These propositions would suggest that future industrial development will be confined by and largely to the metropolitan centres of İstanbul, Ankara and İzmir in particular, but also to Adana and Antalya. Other non metropolitan centres are likely to continue as they are or to expand as branch plant economies, possible without control and vulnerable to cyclical downturns. In contrast, Konya can be seen developing into a servicing node for Ankara's primary sectors and with its consumer requirements being supplied by manufacturers located in Anatolia. Diyarbakır, Şanlıurfa, Malatya, Gaziantep will remain as an under serviced resource hinterland; a fate which might equally be shared by the deeper parts of the Aegean region.

5.2.3 Local Integration of Small Firms

“Only those regions and nations which can mobilise assets for local advantage are rewarded. Nations and regions with assets that are crushed or ignored by the forces of globalisation are likely to face punishing consequences as they fail to establish a foothold in the global economy” (Amin and Thrift, 1997, p. 155).

In the globalisation process, the characteristics of localities become crucial as they have been considered the only ways to create comparative advantage in a local economy. As Amin and Thrift (1997) put it, regions are likely to lose their comparative advantage if they cannot utilize their local resources and mobilize them. Local characteristics combined with the social, political and economic processes operating in a specific place have started to influence the economic outcomes of regions (Taylor and Conti, 1997).

A powerful interpretation of local growth, based on ‘clustering’ and the mobilisation of ‘knowledge’ within the ‘knowledge economy’ (Porter, 1998; Maskell *et al.*, 1998), is now promoted by both states and national governments as well as international bodies like the World Bank (Plummer and Taylor, 2001a). The trust, reciprocity, and loyalty embedded in a place have been identified as the mechanisms that bind firms together to create economic growth in localities confronting globalisation pressures (Braczyk *et al.*, 1998).

To adapt to changing economic conditions, small firms have changed their business strategies and become international. For example, it was reported that small firms contributed 25% to 35% of world manufacturing exports, and about one-fifth of manufacturing small firms received between 10% and 40% of their turnover from cross-border activities (OECD, 2004). Moreover, small firms also pursue strategies that involve international activities (Knight, 1997; McDougall and Oviatt, 2000; McDougall *et al.*, 1994; Reynolds, 1997). In the literature, small firm internationalization is approached using three distinct, but inter-related, perspectives: the internationalization process (Andersen, 1993; Brush *et al.*, 2002; Coviello and McAuley, 1999; Johanson and Vahlne, 1977, 1990; Melin, 1992), export development (Leonidou and Katsikeas, 1996) and international entrepreneurship (McDougall *et al.*, 1994).

The locational integration of small firms is emphasized in almost all the approaches as essential for local economic growth. This variable captures the importance for growth of closely linked small producers and service providers, cooperation based on trust and reciprocity, and the importance of competition based on quality as well as price (Glaeser, 2000). In Turkey, small and medium-sized enterprises (SMEs) constitute a major part of the Turkish economy, accounting for a large proportion of the country's businesses and total employment. The SMEs, including services, accounted in 2000 for: 99.8% of the total number of enterprises, 76.7% of total employment, 38% of capital investment, 26.5% of value added, roughly 10% of exports and 5% of bank credit (OECD, 2004, p.27).

ADANA	173	DIYARBAKIR	19	KOCAELİ	264	TRABZON	37
ADIYAMAN	3	EDİRNE	28	KONYA	48	TUNCELİ	1
AFYON	31	ELAZIĞ	5	KÜTAHYA	16	ŞANLIURFA	14
AĞRI	2	ERZİNCAN	1	MALATYA	13	UŞAK	9
AMASYA	3	ERZURUM	7	MANİSA	60	VAN	7
ANKARA	1464	ESKİŞEHİR	45	K.MARAŞ	24	YOZGAT	5
ANTALYA	2820	GAZİANTEP	100	MARDİN	22	ZONGULDAK	8
ARTVİN	19	GİRESUN	8	MUĞLA	1283	AKSARAY	25
AYDIN	399	GÜMÜŞHANE	0	MUŞ	0	BAYBURT	0
BALIKESİR	32	HAKKARİ	0	NEVŞEHİR	36	KARAMAN	12
BİLECİK	6	HATAY	130	NİĞDE	3	KIRIKKALE	0
BİNGÖL	0	ISPARTA	11	ORDU	12	BATMAN	2
BİTLİS	0	İÇEL	373	RİZE	8	ŞIRNAK	1
BOLU	12	İSTANBUL	11959	SAKARYA	76	BARTIN	2
BURDUR	9	İZMİR	1296	SAMSUN	38	ARDAHAN	1
BURSA	438	KARS	3	SİİRT	0	İĞDIR	3
ÇANAKKALE	33	KASTAMONU	5	SİNOP	2	YALOVA	80
ÇANKIRI	6	KAYSERİ	38	SİVAS	30	KARABÜK	6
ÇORUM	5	KIRKLARELİ	15	TEKİRDAĞ	116	KİLİS	5
DENİZLİ	68	KIRŞEHİR	1	TOKAT	3	OSMANİYE	6
						DÜZCE	11

Table 5.5: Number of Foreign Owned Companies in the Each Province of Turkey
(Turkish Ministry of Foreign Trade, 2011)

Therefore, while SMEs dominate the economy in terms of employment, they operate with comparatively little capital equipment, generate relatively low levels of value added, make only a small contribution to Turkish exports and receive only a marginal share of the funds mobilised by the banking sector (OECD, 2004, p.27).

ADANA	48419	DİYARBAKIR	17253	KOCAELİ	34054	TRABZON	21030
ADIYAMAN	9672	EDİRNE	11001	KONYA	55422	TUNCELİ	1941
AFYON	14853	ELAZIĞ	12353	KÜTAHYA	17544	ŞANLIURFA	24266
AĞRI	5713	ERZİNCAN	4415	MALATYA	14277	UŞAK	10204
AMASYA	8920	ERZURUM	14135	MANİSA	38352	VAN	12084
ANKARA	129071	ESKİŞEHİR	22218	K.MARAŞ	18008	YOZGAT	10491
ANTALYA	67216	GAZİANTEP	34283	MARDİN	8869	ZONGULDAK	19529
ARTVİN	5562	GİRESUN	10854	MUĞLA	38217	AKSARAY	8859
AYDIN	35324	GÜMÜŞHANE	2677	MUŞ	3239	BAYBURT	2042
BALIKESİR	40832	HAKKARİ	2234	NEVŞEHİR	9900	KARAMAN	5470
BİLECİK	4739	HATAY	31428	NİĞDE	7670	KIRIKKALE	8047
BİNGÖL	3402	ISPARTA	11415	ORDU	20098	BATMAN	4447
BİTLİS	4484	İÇEL	43040	RİZE	9406	ŞIRNAK	3312
BOLU	7211	İSTANBUL	343960	SAKARYA	20389	BARTIN	5860
BURDUR	7214	İZMİR	118769	SAMSUN	33929	ARDAHAN	2058
BURSA	76515	KARS	5055	SİİRT	3399	IĞDIR	4596
ÇANAKKALE	14018	KASTAMONU	11811	SİNOP	6219	YALOVA	6030
ÇANKIRI	4290	KAYSERİ	22586	SİVAS	15195	KARABÜK	6941
ÇORUM	15697	KIRKLARELİ	14274	TEKİRDAĞ	22252	KİLİS	3075
DENİZLİ	32442	KIRŞEHİR	5832	TOKAT	16734	OSMANİYE	10726
						DÜZCE	7988

Table 5.6: Number of local unit size group between 1-49 employees (TUIK, 2002)

The measure of local integration of small firms' is drawn from the Turkish Statistical Institute 2002 General Census of Industry and Business Establishments dataset. The percentage of SMEs is used as an indicator to present local integration of small firms. To isolate the figures from multinational companies, the number of foreign owned companies in each city has been identified (Table 5.5). Almost all foreign owned companies in Turkey have more than 50 employees but the current study only

includes the number of establishments with an employment size between 1 and 49 (see Table 5.6), and this means that they are not included in this analysis.

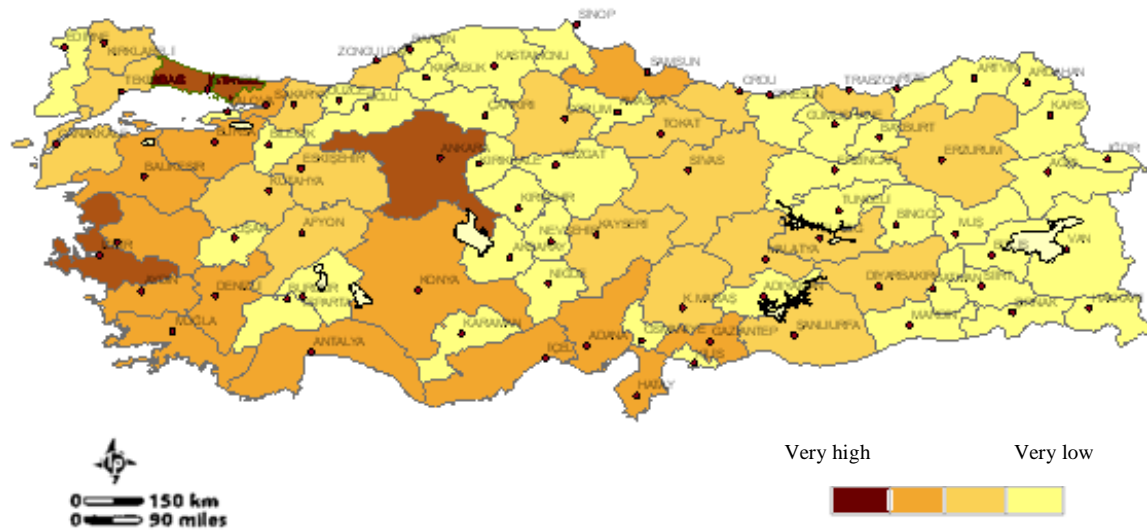


Figure 5.4: Percentage of locally owned businesses (1-49 employees) in Turkey

The distribution of the total number of employees between 1 and 49 remains similar to the knowledge workers in Turkey (Figure 5.4). Small firms tend to concentrate around the big regional capitals, i.e. Istanbul, Ankara and Izmir, in Turkey. Following the big metropolitan provinces, the Aegean and the Mediterranean parts of Turkey have big concentrations of smaller firms. On the other hand, the eastern part of Turkey has a smaller concentration. Figure 5.4 shows some significant facts about the economic growth patterns in Turkey. The most populated cities in Turkey are located in the western part of the country such as Istanbul (more than 12 million), Ankara (circa 5 million), Izmir (circa 4 million) and Bursa (circa 3 million). The uneven distribution of wealth in Turkey, mostly in favour of the Western part of the country, remains one of the major concerns in the regional economic development. Studies

have been undertaken to identify problems of regional inequality and heterogeneity. Some studies highlight that the geographical location of provinces influences the level of income and education, creating spatial inequalities between the eastern and western parts of Turkey (Celebioglu and Dall'erba, 2009; Gezici and Hewings, 2004; Ozturk, 2002; Tansel and Gungor, 2000; Ates *et al.*, 2000). Some studies focus on inequalities in salaries and migration from east to west (Elveren and Galbraith, 2008; Kirdar and Saracoglu, 2007). They show that inequalities in salaries and migration have increased the rate of urbanization in Turkey. The distribution of small firms in Turkey correlates with these studies as it shows that there is an eastern and western division in Turkey.

5.2.4 Institutional Capacity and Institutional Thickness

Institutions are the main players of the innovation systems literature and they have received a lot of attention in the field of business management, economics and economic geography (Freeman, 1987; Cooke, 1990; Lundvall, 1992; Malerba, 2002). After the emergence of the flexible-production systems, institutions have been affiliated with the concepts of 'learning regions' (Asheim, 1997; Lundvall, 1992; Maskell et al, 1998) and they have changed the direction of economic development to more 'social' and 'cultural' issues such as social consensus, institutional support for local business, innovation, skill formation and the circulation of ideas (Amin and Thrift, 1994; Asheim, 1996). Geography has a particular importance in the process of innovation and learning since these social and cultural dimensions are localized in specific places.

Considering the ‘place-centeredness’ of these dimensions, Amin and Thrift (1994, p.2) emphasize the role of certain institutions, ranging from strong local institutional presence through to the strength of shared rules and knowledge, to form the social and cultural basis of the economic success of the regions. They provide a list of the organizational components to describe the institutional thickness of a locality such as a strong institutional presence ranging from firms, training centres, government agencies, trade associations; high levels of interaction amongst the institutional network in the locality; structures of domination and patterns of coalition; and a mutual awareness of an ‘industrial purpose’ amongst institutions (Amin and Thrift, 1994, 1995). In the most appropriate combination of these four determinants of institutional thickness, the concept is expected to have institutional persistence; achievement of commonly held knowledge; institutional flexibility; a high innovation capacity; trust and reciprocity; and a plethora of diverse institutions to mobilise regions effectively (Henry and Pinch, 2001).

However, the concept of institutional thickness still remains as a very broad issue to conceptualize because it is essentially intangible. Some studies suggest that it is key to understanding the workings of the global economy (Amin and Thrift, 1994, 1995; Henry and Pinch, 2001; Keeble et al. 1999; Raco, 1998; Sydow and Staber, 2002), and that it enables us to understand local and regional capacity for collaboration and incorporation in the context of globalization. However, a growing number of studies suggest that the concept does not always bring economic success and it sometimes excludes enterprises in a local economy (Eraydin, 2002a; MacLeod, 1997; Raco, 1998, Taylor, 2002, 2005; Wolneberg, 2002). Therefore, the broader picture of

institutional thickness, particularly its social and cultural origins and the overall changes in innovation systems, have remained elusive and less clear.

The main objective of this study is to identify an indicator for the assessment of institutional thickness amongst various possible proxy measures in the Turkish context. The identification of the concept of institutional thickness in Turkey will enhance knowledge concerning the innovation systems literature and the socio-cultural dimension of economic development in developing countries. In that sense, this study is an attempt to measure and understand the dynamics of regional innovation systems through analyzing the possible indicators developed in developed market economies. In the following part of the study, the theorizing process is discussed with respect to two sets of literature that the concept of institutional thickness is built on. The methodology section discusses the possible proxy measures that can represent institutional thickness in the Turkish context. In the final part, those measures are correlated and an indicator for the assessment of institutional thickness is identified.

5.2.4.1 Theorizing Process

To start with, it is important to recognise that the assessment and identification of indicators are difficult, if not impossible, to measure. Data only ever portray outcomes – what has happened in the past and what is the current situation – and act only as a signpost towards what might happen in the future. It is only through theory that processes can be conjectured, making theory central to the formulation of policies to

generate local economic growth. As such, regional economic policies are only as good as the theories that are used in their formulation which are relevant to the regions that are being targeted.

What is only too clear at present is that there is no shortage of theories that specify the concept of institutional thickness. What is just as unclear is which of the institutions has any empirical and practical relevance in developing the policies of national innovation systems for a country like Turkey.

At the moment, there are two sets of literature built around institutional thickness, all of which have been developed in developed country contexts, though they have been applied far more widely. These two sets of literature are built on:

- 1) innovation systems (also referred to as national and regional innovation systems), and
- 2) Alfred Marshall's work on industrial districts.

The literature on innovation systems explains innovation support policies as the components of systems of innovation at various spatial scales (Lundvall, 1992; Braczyk et al., 1998; Edquist, 1998). Discussions focus on institutional factors such as the structure of the research base and R&D spending and the relationship with the trajectories of industrial innovation in key sectors. In Turkey, central government, ministries, the State Planning Institute, local authorities, local chambers and unions are the main institutions promoting local and regional economic growth. In addition to

public and non-public institutions, trust, reciprocity and family circles are also very important elements (Eraydin, 1998a; Saracoglu, 1993). However, even though the institutions of government and civil society appear to create institutional thickness in theory, they provide no economic resilience during a recession or over the long term (Eraydin, 2002a). This can be explained via the importance of networking and access to information which remain as the central elements of the next set of literature on institutional thickness.

The literature on Alfred Marshall's work on industrial districts focuses on the agglomeration of interrelated industries in a specific region or location (Amin and Thrift, 1992; Markusen, 1996). The main reason behind this kind of agglomeration is explained through the geographical location, industrial composition, natural endowment of firms or the existence of competing industries (Maillat and Lecoq, 1992; Garnsey, 1998). It is endogenous economic growth which creates the possibility for networks and partnerships to be effective in local economies. At the heart of endogenous economic growth is 'endogenous' technological change (including 'social capital' and 'human capital') built on processes of learning-by-doing, knowledge spill-over, and Schumpeterian 'creative destruction' as entrepreneurs invest in knowledge and innovation (see Martin and Sunley, 1998; Jones, 1998).

Considering these two sets of literature on institutional thickness, the question is how to identify the best proxy measure that represents the concept of institutional thickness in the Turkish context. Many proxy variables have been used in studies to date (see Durlauf et al., 2004). However, though those proxy variables might fit, they are

nevertheless difficult to interpret in a meaningful way in terms of the economic reasoning. This is especially true when variable selection is driven by data availability rather than theoretical fit (Durlauf and Quah, 1999). Fortunately, although there are some challenges to finding out the best proxy measure, they are not insurmountable. The next section explains the selection process.

5.2.4.2 Methodology

The main objective in this stage is to identify the possible indicators that could represent institutional thickness in the Turkish context. This is done through identification of possible proxy measures that can represent the concept of institutional thickness. Those measures are then correlated to find out the most significant proxy measure. Principal component analysis is also undertaken to reduce the dimensionality of the dataset.

The theories of institutional thickness suggest that the concept involves a variety of different institutions including financial institutions, local chambers of commerce, training agencies, trade associations, local authorities, development agencies, Higher Education Institutions (HEIs), innovation centres, clerical bodies, unions, government agencies, land and infrastructure, business service organisations and marketing boards. Within the availability of the data, various indicators are collected at the provincial level. They include the amount of public investment, the amount of investment incentives, the amount of municipality expenditure, the number of SMEs investment incentive certificates, the number of NGOs, the number of public

collected as per capita for each province from the Turkish Statistical Institute 2004 database.

Municipality Expenditure

The rapid urbanization in Turkey has increased the need for services such as transportation, health and education especially in big cities after the 1980s. In addition to the provision of physical infrastructure, various facilities have been established under Turkish municipalities such as vocational education centres. These data are collected by taking the municipality expenditures of each province per capita from the Turkish Statistical Institute 2002 database. These expenditures include general public services; public order and safety; economic affairs; environmental protection; housing and community amenities; health, recreation, culture and religion; education; and social protection.

Number of Public Buildings

Institutional thickness involves a variety of different institutions including firms, financial institutions, local chambers of commerce, local authorities, development agencies, government agencies, business service organisations, the number of HEIs (Higher Education Institutions). To make a general estimation of this indicator, the total number of the public buildings in each province can be considered to explain institutional thickness. It might be argued that some buildings, i.e. local chambers of commerce business service organizations, are rented for private purposes. However,

according to the Turkish Public Fiscal and Control Law⁸⁰, public buildings are only rented for non-profit purposes. Also there might be cases where there are lots of small buildings as opposed to places where they may be few, but large public buildings that might accommodate more employees than places with a large number of small buildings. This measure accepts the limitations restricted upon it and only acts as a possible indicator for the institutional thickness variable. The data are taken from the table of ‘Number of Public Buildings According to Cities and Usages’ of the KOSGEB (Small and Medium Enterprises Development Organisation) 2006 Regional Development Research Report which references the Turkish Statistics Institute as its main resource.

Public Knowledge Creation

Public knowledge creation represents a variety of institutions with the emphasis on the institutions that promote and support industries such as public and Higher Education laboratories. The public laboratories of Turkey can be directly affiliated with public institutions such as the City Control Laboratories under the Ministry of Agriculture and Rural Affairs, the Environmental Reference Laboratories under the Ministry of Environment and Forestry, or they can be indirectly affiliated with public or semi public institutions such as the Laboratories of the Turkish Standard Institute or the Laboratories of the Scientific and Technological Research Council of Turkey. The data are taken from the table of ‘Public and University Laboratories’ of the KOSGEB 2006 Regional Development Research Reports which makes reference to

⁸⁰ Public Fiscal and Control Law No 5018 Article 3

the TURKLAB (The Association of Calibration and Experiment Laboratories which has been founded as an organization representing Turkey's Calibration and Experiment Laboratories on the National and International Level) 2005 study.

Amount of Investment Incentives

Amount of investment incentives is aimed to increase investment capacity of the State by focusing on particular investment types (Table 5.8). Investment incentives are

Investment Types/Areas	Credit Ceiling	Credit Re-payment Period	Investment rate (YTL-denominated)
Investment in line with Regional Development Plans	* Minimum of 30% of the fixed investment cost and 4.5 million YTL	6 years (No re-payment in the first 3 years)	20%
* Research and development * Environmental protection * Priority technology * Investment to be moved to organized industrial zones	* Minimum of 50% of the fixed investment cost and 400.000 YTL	5 years (No re-payment in the first year)	20%
* Manufacturing * Agro-industry and * Mining investment to be realized in the Priority Development Regions	* Minimum of 50% of the fixed investment cost and 500.000 YTL	5 years (No re-payment in the first year)	20%

Table 5.8: Example of Investment Credits (Turkish Ministry of Foreign Trade, 2011)

aimed to increase investment capacity of the State. The types of investments make this measure very important as they are subject to the production of goods and services, R&D, environmental protection and improvement of quality and standards. Enterprises are subject to apply to the Turkish banks such as Halkbank, Turkish Development Bank, Vakifbank, Ziraat Bank and the Turkish Industrial Development Bank to get those credits. These data are created by taking the total amount of investment incentives per capita (YTL) for each province from the Turkish Statistical Institute 2003 database.

Collaborative Knowledge Creation

Collaborative knowledge creation is supported and promoted by KOSGEB to establish ORTKAs (Collaborative usage studios) and ORTLABs (Collaborative usage laboratories) in various cities in Turkey. KOSGEB gives support to companies and enterprises of the same interests or complementary branches of businesses to buy necessary machinery and equipment which they cannot afford to buy individually or collectively. However, the only prerequisite is that these companies and enterprises have to come together on the basis of a joint agreement with other companies and enterprises. The number of these studios and laboratories gives us a very important indicator in terms of engagement of such institutions. The data are taken from the KOSGEB 2006 Regional Development Research Reports which makes reference to Turkish Statistical Institute 2004 database.

	Agriculture	Mining	Manufac	Energy	Services	Total
Number of Certificates						
2004	82	168	2558	45	1225	4078
2005	96	158	2305	85	1660	4304
2006	94	132	1614	55	1195	3090
2007	64	131	1424	102	645	2366
2008	73	136	1476	144	619	2448
Fixed Investment (TL) X 1 million						
2004	361	515	11818	903	5022	18619
2005	488	687	12579	2102	7690	23546
2006	519	608	11735	1939	8568	23369
2007	347	639	12368	4158	8820	26334
2008	360	714	10211	8600	8344	28229
Foreign Exchange (1000\$)						
2004	89893	164968	5581315	471258	1561785	7869219
2005	120520	212438	5412766	838324	1679942	8263990
2006	108316	224383	4785607	706940	2058316	7883562
2007	87394	153841	5773826	1348986	1716959	9081006
2008	85652	200582	4717140	3157951	2358400	10519725
Employment (person)						
2004	6431	7851	98641	1834	51019	165776
2005	4709	8247	90310	889	75217	179372
2006	4006	4406	62834	1452	50014	122712
2007	2360	4052	69246	4928	52572	133158
2008	2590	4673	47249	5142	38723	98377

Table 5.9: Sectoral Breakdown of Investment Incentive Certificates (January-December) (Turkish Ministry of Foreign Trade, 2011)

SMEs Incentive Investment Certificates

After the declaration of ‘the year of the SMEs’ in 1996, Turkish industrial policy has been modified to subsidize the R&D and marketing activities of the SMEs. In the 7th Five Year Plan (1996-2000), a new policy towards SMEs was adopted as the SMEs are adaptable to economic change and innovations and they have a high capacity to create employment. In that respect, investment certificates are provided to encourage and promote SMEs in Turkey (see Table 5.9 for the allocation of Investment Incentive Certificates). These certificates are given by the Turkish Treasury to be used for tax and VAT exemptions and free customs duties. The data are taken from the 2004 Turkish Statistical Institute database.

Non Governmental Organisations

Amongst the other variables, non governmental organizations (NGOs) are probably the organisations that are most commonly thought to reflect the essence of institutional thickness. The data are accessed through the website of the Civil Society Development Centre⁸¹. The main concern with this database is that the total number of NGOs would be misleading in some cases. For example, each of these NGOs has a different orientation some of which would be irrelevant for the concept of institutional thickness. Although some focus on socio-cultural aspects of localities, it is difficult to comprehend to what extent others relate to the development of local economies. However, it is important to acknowledge that some NGOs participate in global value

⁸¹ <http://www.stgm.org.tr/eng/>

creation and governance and they can alter the global political-economic landscape. Therefore, this indicator should be examined very carefully.

5.2.4.3 Correlation of the Variables

The correlation of the possible indicators is required to identify which one of the indicators explains the concept of institutional thickness. The correlation matrix (Table 5.10) shows that some of the indicators have high significance levels. This means that these indicators are statistically explanatory. According to the correlation table, the municipality expenditures, the number of public buildings and the public knowledge creation indicators are the most encompassing indicators.

	1	2	3	4	5	6	7	8
1) Public Investment (2004)	1	,059	*	,024	,115	*	*	,351 (**)
2) Municipality Expenditure (2002)	,059	1	,637 (**)	,675 (**)	,442 (**)	,100	,356 (**)	,187
3) Number of Public Buildings (2000)	*	,637 (**)	1	,696 (**)	,359 (**)	,029	,512 (**)	,080
4) Public Knowledge Creation (2005)	,024	,675 (**)	,696 (**)	1	,388 (**)	*	,418 (**)	,078
5) Amount of Investment incentive (2003)	,115	,442 (**)	,359 (**)	,388 (**)	1	,060	,214	*
6) Collaborative Knowledge Creation (2005)	*	,100	,029	*	,060	1	,201	,100
7) SMEs Incentive Investment Certificates (2004)	*	,356 (**)	,512 (**)	,418 (**)	,214	,201	1	,080
8) NGO (2010)	,351 (**)	,18 7	,08 0	,07 8	*	,10 0	,08 0	1

* Negative values

** Correlation is significant at the 0.01 level (2-tailed).

Table 5.10: Pearson Correlation for the institutional thickness variable (81 observations)

Principal component analysis (PCA) is also undertaken to check whether some of the

variables are correlated with one another simply because they are measuring the same construct (Table 5.11). The analysis is used to identify patterns in data and express the data in such a way as to highlight similarities and differences. The public knowledge creation, the number of public buildings and municipality expenditures indicators are statistically significant when the component and rotated component matrixes are undertaken (Table 5.11).

Amongst these indicators, the public knowledge creation indicator remains the most encompassing indicator. It is correlated with the municipality expenditures, the number of public buildings, the amount of investment incentive, and the SMEs incentive investment certificates indicators (Table 5.10). Also PCA using rotated component matrix shows that the public knowledge creation indicator appears as the most significant indicator amongst others (Table 5.11). However, it is important to acknowledge the fact that the significance of this indicator relies on the robustness of the data. Nevertheless, the identification of this indicator supports the theories of institutional thickness as it supports the active local engagement of institutions, including high levels of contact, cooperation and information exchange (Ersoy, 2011).

Component Matrix(*)

	Component		
	1	2	3
Number of public buildings 2000	,856	-,115	-,064
Public knowledge creation 2005	,850	-,021	-,196
Municipality expenditures per capita per person 2002 (ytl)	,842	,097	-,046
SMEs incentive certificates (number) 2004	,639	-,204	,343
Amount of investment incentives per capita 2003 (ytl)	,586	,025	-,222
Public investment per capita per person (ytl) 2004	,033	,847	-,150
NGOs	,174	,760	,354
Collaborative Knowledge Creation 2005	,132	-,084	,872

Rotated Component Matrix(*)

	Component		
	1	2	3
Public knowledge creation 2005	,872	,022	-,024
Number of public buildings 2000	,856	-,053	,120
Municipality expenditures per capita per person 2002 (ytl)	,828	,157	,104
Amount of investment incentives per capita 2003 (ytl)	,616	,043	-,106
Smes incentive certificates (number) 2004	,567	-,108	,485
Public investment per capita per person (ytl) 2004	,018	,821	-,257
NGOs	,059	,810	,271
Collaborative Knowledge Creation 2005	-,043	,037	,884

Extraction Method: Principal Component Analysis.
 *3 components extracted.

Table 5.11: Component Matrix and Rotated Component Matrix of the variables

In other words, the concept of institutional thickness which suggests that a variety of different institutions including financial institutions, local chambers of commerce, training agencies, trade associations, local authorities, development agencies, Higher Education Institutions (HEIs), etc. are essential in theories of local economic development is theoretically and statistically explained in the Turkish context (see Figure 5.5 for the concentration of this variable across Turkish provinces).

creation do not contribute to an explanation of institutional thickness in Turkey. This proves that it is sometimes ‘the processes of institutionalisation’ rather than ‘the presence of institutions’ (Amin and Thrift, 1994, 1995) that generate long term benefits. That means that places with high institutional thickness are explained not by the fact that there are a high number of institutions present, but by the interaction between them (Ersoy, 2011). This explanation is one that differs from the explanations offered by theories of institutional thickness.

There might be some problems with the identification of various possible indicators and what they correspond to in the Turkish context. This measure accepts the limitations restricted upon it and only acts as a possible indicator for the institutional thickness variable. When the two other significant indicators, i.e. the number of public buildings and the amount of municipality expenditure are drawn together with the public knowledge creation indicator, they suggest, tentatively, a distinctive form of innovation system across Turkey’s provincial structures built on financial support by the government and driven by its public institutions. This is an interpretation that is consistent with Turkey’s economic growth policies which are dominated by central government. From the study reported here, two fundamental conclusions can be drawn. First, no current theory of institutional thickness drawn from developed country contexts provides an adequate understanding of institutional settings for a developing country context. Second, more studies from developing countries should be undertaken to understand the broader picture of institutional thickness. It is essential to formulate policies of innovation systems that are relevant and country specific. However, policy makers should first understand the impact of the

institutional settings of their governments and then facilitate engagement of institutions by employing high levels of contact, cooperation and information exchange.

5.2.5 Human Resources

Local human base is an important element of entrepreneurship which directly links to human capital theory (Schultz, 1975; 1980). The basic premise of this theory is that people invest in themselves through education and training to get higher earnings. Higher investment in human capital creates higher labour productivity and hence it promotes entrepreneurial success (Tamasy, 2006). Preisendorfer and Voss (1990) identify human capital in entrepreneurship in three different ways: (1) general human capital which has been created through education, (2) industry specific human capital which has been created as a result of experiences in a particular industry, and (3) firm specific human capital that describes general entrepreneurial experiences and skills.

A significant number of papers state that there is a connection between the initial level of human capital in an area and economic growth (Glaeser, 1994; Glaeser *et al.*, 1995; Mody and Wang, 1997; Simon and Nardinelli, 1996, 1998). Regardless of whether human capital is measured as years of schooling, the percentage of college educated people, or a measure of education based on the occupational mix, there is a strong, steady link between growth and initial skills in the area (Clark *et al.*, 2000). Therefore, the local human resource base, encompassing issues of skills, education,

participation, and low-wage locations, plays a prominent role in stimulating growth (Plummer and Taylor, 2000).

Previous research has conceptualised human capital as a resource endowment that significantly influences the firm's survival and growth (Greene *et al.*, 2001). Cooper *et al.* (1994) explored the impact of human capital on the survival and growth of new ventures. They found that general human capital and industry-specific know-how contributed to both survival and growth of new ventures (Brush *et al.*, 2002). However, not many studies confirm that there is a relation between education, productivity and city growth (Südekum, 2009). In his paper, Südekum, (2009) shows that concentration forces for human capital are not sufficiently strong to generate a self-reinforcing spatial clustering of high-skilled workers in the German economy.

Turkey's human capital base is considerably weaker than most other European countries. This is reflected in the comparatively low share of the population with tertiary education (see Figure 5.6). However, Turkey has made improvements in education levels recently. In 2009⁸², the United Nations Development Programme announced that among countries in the high human development category, Turkey ranks 79th out of 182 countries, according to the 2009 Human Development Index⁸³ (HDI). 18 countries in the same category as Turkey such as Bulgaria, Romania and Macedonia have lower income levels but are listed above Turkey in the rankings. This draws attention to a need for increased efforts that will enable the country to convert

⁸² 5 October 2009, United Nations Development Programme Press Release

⁸³ The HDI is a summary measure for monitoring long-term progress in the average level of human development in three basic dimensions: a long and healthy life, access to knowledge and a decent standard of living. expectancy at birth; adult literacy and combined gross enrolment in education; and GDP per capita in purchasing power parity US dollars (PPP US\$), respectively.

its high income levels into enhanced human development (Napier *et al.*, 2004). Nonetheless, Turkey's human capital inputs are still below the EU average.

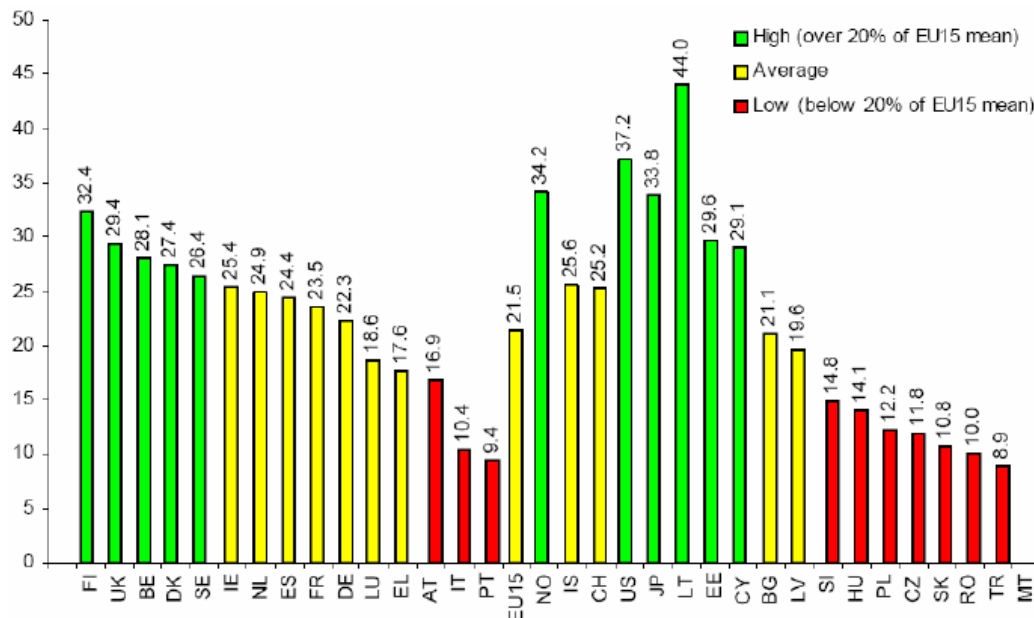


Figure 5.7: Population with tertiary education (% of 25-64 years old age) (European Commission Report, 2003b, p. 41)

Moreover, unemployment statistics reveal that unemployment rates are disproportionately higher among the members of the labour force with higher education levels than amongst people with little education (World Bank, 2004). This indicates, firstly, that the available human capital resources are not as strong as perceived, or are not used effectively. A second important concern is that education and training are not attuned to the needs of the economy – that universities are not producing graduates with the skills that are in demand (Napier *et al.*, 2004). This concern reflects some structural problems in the economy. Therefore, the mechanisms which are currently being used to adjust the supply of graduates in different

disciplines to be consistent with the demand/growth strategies are not functioning properly.

ADANA	0,136	DİYARBAKIR	0,347	KOCAELİ	0,087	TRABZON	0,262
ADIYAMAN	0,315	EDİRNE	0,166	KONYA	0,125	TUNCELİ	0,243
AFYON	0,221	ELAZIĞ	0,241	KÜTAHYA	0,194	ŞANLIURFA	0,443
AĞRI	0,468	ERZİNCAN	0,255	MALATYA	0,201	UŞAK	0,181
AMASYA	0,198	ERZURUM	0,254	MANİSA	0,185	VAN	0,471
ANKARA	0,062	ESKİŞEHİR	0,068	K.MARAŞ	0,250	YOZGAT	0,258
ANTALYA	0,110	GAZİANTEP	0,164	MARDİN	0,403	ZONGULDAK	0,274
ARTVİN	0,215	GİRESUN	0,310	MUĞLA	0,175	AKSARAY	0,215
AYDIN	0,200	GÜMÜŞHANE	0,303	MUŞ	0,724	BAYBURT	0,279
BALIKESİR	0,176	HAKKARİ	0,404	NEVŞEHİR	0,204	KARAMAN	0,142
BİLECİK	0,100	HATAY	0,258	NİĞDE	0,268	KIRIKKALE	0,126
BİNGÖL	0,431	ISPARTA	0,133	ORDU	0,325	BATMAN	0,297
BİTLİS	0,440	İÇEL	0,142	RİZE	0,211	ŞIRNAK	0,386
BOLU	0,167	İSTANBUL	0,076	SAKARYA	0,125	BARTIN	0,482
BURDUR	0,174	İZMİR	0,089	SAMSUN	0,217	ARDAHAN	0,512
BURSA	0,093	KARS	0,391	SİİRT	0,389	IĞDIR	0,421
ÇANAKKALE	0,198	KASTAMONU	0,350	SİNOP	0,344	YALOVA	0,109
ÇANKIRI	0,231	KAYSERİ	0,109	SİVAS	0,211	KARABÜK	0,172
ÇORUM	0,239	KIRKLARELİ	0,125	TEKİRDAĞ	0,107	KİLİS	0,240
DENİZLİ	0,141	KIRŞEHİR	0,178	TOKAT	0,272	OSMANIYE	0,168
						DÜZCE	0,202

Table 5.12: Percentage of working population without a primary school degree

5.2.6 Power of Large Corporations

A growing number of studies on the geography of big corporations have received a lot of attention over the last decade and large corporations have become a major part of society (O'Neill, 2003; Coe *et al.*, 2004; 2008; Taylor *et al.*, 2006; 2010). Literature on the geography of corporations focuses on issues at two alternative scales (Tonts and Taylor, 2010). The first is global-level processes that focus on the level of economic integration of places. The topics cover the emergence of global centres (Taylor *et al.*, 2009; Sassen, 2006); the division of production and control locations (Phelps, 1993; Bartlett and Hedlund, 1996); and the multi national corporations (Carroll, 2007). The second focuses on the sub-national level by understanding processes of economic development in which corporations engage with regions and localities (Storper, 1997; Oinas, 1997; Yeung *et al.*, 2001).

Similarly, Scott (1997, p.26) explains three kinds of economic power that the corporate form of economic organization entails in society: *strategic, operational, and allocative*. Strategic power occurs at the level of structural decision making and concerns the determination of basic long-term goals and the adoption of initiatives to realize those goals. Operational power involves the actual implementation of corporate strategy within the head office and in sub-ordinate offices, subsidiaries, and plants. Finally, there is the allocative power wielded by financial institutions, whose collective control over the availability of capital ``gives them the power to determine the broad conditions under which other enterprises must decide their corporate strategies" (Scott, 1997, page 139).

One of the main issues around big corporations in the economy is to understand how they contribute to the formation of national and global economies (Goodwin, 1965; Abler *et al.*, 1971; Taylor and Thrift, 1982). However, the study of the geography of corporate control became unfashionable during the 1980s (Tonts and Taylor, 2010) partly because of the growing complexity of corporations and the economy (Walker, 1988) and partly because of the increasing focus on global centres of control (Friedman, 1986). Recently, corporate headquarters have gained attention again in Taylor's studies of world cities (Taylor, 2004, 2007).

Adana	11	Duzce	1	Karaman	3	Sakarya	6
Ankara	43	Edirne	2	Kastamonu	1	Samsun	3
Antalya	4	Eskisehir	7	Kayseri	13	Kutahya	2
Aydin	1	Erzurum	1	Kirsehir	1	Siirt	1
Balikesir	9	Gaziantep	10	Kocaeli	28	Sivas	1
Bolu	3	Hatay	9	Konya	7	Rize	1
Burdur	1	Icel	2	Kutahya	2	Tokat	1
Bursa	32	Istanbul	225	Manisa	7	Trabzon	2
Canakkale	1	Izmir	36	Mardin	1	Tekirdag	2
Cankiri	1	K. Maras	3	Mugla	1	Zonguldak	2
Denizli	9	Karabuk	1	Ordu	5		

Table 5.13: The number of top 500 enterprises in the provinces of Turkey (ISO, 2009)

In the current study, the power of large corporations to enhance or retard local growth is measured as an index of corporate control (C). This surrogate has been developed from the 2008 "Top 500 industrial enterprises" list of ISO. Each business has been assigned to the head office province (Table 5.13) and the net production profit for

each corporation has been added up to find the total net profit of production for a particular province. To estimate the impact of corporations in that province, the net productive profit of each corporation has been assigned to the province within which it is headquartered and standardized across provinces as “production profit per resident person in a particular province”.

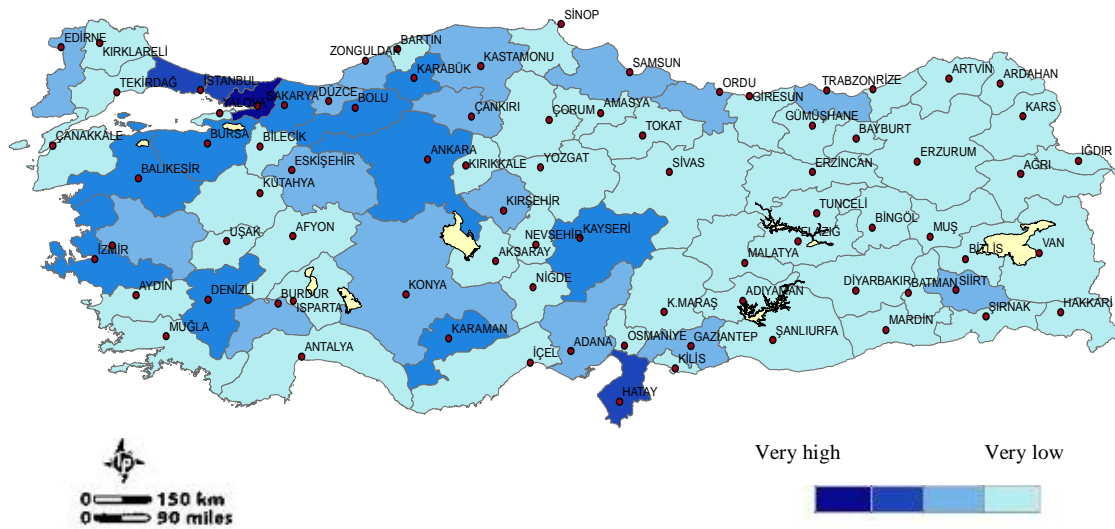


Figure 5.9 Total net profit of production of Top 500 industrial enterprises in Turkey

The result of the analysis across provinces is illustrated above (Figure 5.7). Similar to the previous analysis, some big provinces such as Istanbul, Izmir, Ankara still remain significant in the sense that the total net production profit of corporations in that province is above average. However, different than the previous drivers, some provinces such as Balıkesir, Denizli, Hatay, Karaman appear significant for the first time. These are important findings for the localities that have not been significant in other drivers. There should be more research on the impact of those corporations in

the small provinces to understand whether those big corporations are also effective in local economies.

5.2.7 Market Accessibility

Explanations of market accessibility are often posed in terms of the neoclassical Heckscher-Ohlin-Samuelson theory (Moroney and Walker, 1966; Moroney, 1970; 1975; Klassen, 1973; Greytak, 1975) which states that a country specializes in the commodity that requires the most abundant factor of production of that country. Therefore, understanding the determinants of interregional commodity flows is critical for both transportation infrastructure planning (highways, railroad tracks, river/port facilities) and regional development policies (location of activities, reducing regional disparities) (Ashtakala and Murthy, 1988; Black, 1971, 1972; Chisholm and O'Sullivan, 1973; Frankel and Wei, 1998; Reed, 1967). Market accessibility is defined in this study as market access of a province to intermediate goods, i.e. manufacturing and construction sectors. Manufacturing sectors here refer to those industries which involve in the manufacturing and processing of items and the final products of these sectors can either be served as finished goods or intermediate goods⁸⁵.

Krugman (1991) assumes that manufactured goods are costly to transport and subject to economies of scale in production. Therefore, many manufactured goods are often produced in cities to keep the producers and the consumers in close proximity to

⁸⁵ Unfortunately,, there is no such differentiation in the Turkish Statistics and hence the current study considers the whole manufacturing industries as one of its parameters.

avoid transportation costs. However, many manufactured goods are produced in one city and consumed in another. It is thus possible that cities are not a consequence of transportation costs but a consequence of having many people undertaking similar work in close proximity (Rotemberg and Saloner, 2000).

The standard explanation of regional agglomeration (e.g. Marshall, 1920; Melvin, 1969; Markusen and Melvin, 1981; Ethier, 1982) is that, for given inputs, the output of an individual firm is larger as long as the aggregate output of other firms producing the same good in the same region is larger. For example, *“the level of inputs required by a new watchmaker to produce a given output is lower if that entrant locates in Switzerland where there are other watch manufacturers”* (Rotemberg and Saloner, 2000, p.373). Therefore, locations of firms and their input suppliers are interdependent. An example for this type of locational choice for firms is the Heckscher–Ohlin–Samuelson model. According to this model, exporting firms are located where inputs are abundant. Rotemberg and Saloner (2000) explain this model in relation to the availability of inputs. According to them, inputs become abundant wherever there are several exporting firms and this is a crucial element for input suppliers to make an investment.

In the current study, market accessibility is measured in terms of the accessibility of a province to intermediate goods within Turkey. The measure is calibrated through a simple interaction model in which size is measured as employment in manufacturing and construction (Table 5.14), and distance is measured as road distance. Total

ADANA	55213	GİRESUN	7160	SAMSUN	21690
ADIYAMAN	5932	GÜMÜŞHANE	1339	SIİRT	1515
AFYON	14773	HAKKARİ	448	SINOP	2936
AĞRI	1558	HATAY	23285	SIVAS	9291
AMASYA	4492	ISPARTA	10905	TEKİRDAĞ	67889
ANKARA	185119	İÇEL	29777	TOKAT	11760
ANTALYA	29711	İSTANBUL	765583	TRABZON	14131
ARTVIN	2165	İZMİR	169063	TUNCELİ	616
AYDIN	22035	KARS	1682	ŞANLIURFA	15315
BALIKESİR	27564	KASTAMONU	7762	UŞAK	12067
BİLECİK	10720	KAYSERİ	41063	VAN	4228
BİNGÖL	1610	KIRKLARELİ	9824	YOZGAT	6380
BİTLİS	1183	KIRŞEHİR	3661	ZONGULDAK	18897
BOLU	11708	KOCAELİ	86309	AKSARAY	4217
BURDUR	5026	KONYA	48037	BAYBURT	748
BURSA	176180	KÜTAHYA	13447	KARAMAN	7555
ÇANAKKALE	9798	MALATYA	13154	KIRIKKALE	8177
ÇANKIRI	3566	MANİSA	41290	BATMAN	1722
ÇORUM	13254	K.MARAŞ	22358	ŞIRNAK	530
DENİZLİ	69476	MARDİN	2731	BARTIN	2446
DİYARBAKIR	9002	MUĞLA	12263	ARDAHAN	363
EDİRNE	18023	MUŞ	1123	IĞDIR	504
ELAZIĞ	6281	NEVŞEHİR	4850	YALOVA	6534
ERZİNCAN	2647	NİĞDE	5831	KARABÜK	10745
ERZURUM	5899	ORDU	12235	KİLİS	1735
ESKİŞEHİR	31687	RİZE	20277	OSMANİYE	4000
GAZİANTEP	57674	SAKARYA	23464	DÜZCE	11849

Table 5.14: Total number of employment in manufacturing and construction sectors

numbers of employment in manufacturing and construction sectors is taken from the General Census of Business Establishments 2002 database. This is an index for each province of the magnitude of market accessibility at a distance.

To calibrate the interaction model, ‘size’ (S_j) has been measured as employment in manufacturing and construction in each of the provinces.

$$\sum E_{ij} = \frac{\frac{S_i}{d_{ij}}}{\sum_{j=1}^n \frac{S_j}{d_{ij}}}$$

where: ‘S’ the number of manufacturing and construction employee

‘d’ the distance between centres

‘i’ and ‘j’ are pairs of provinces

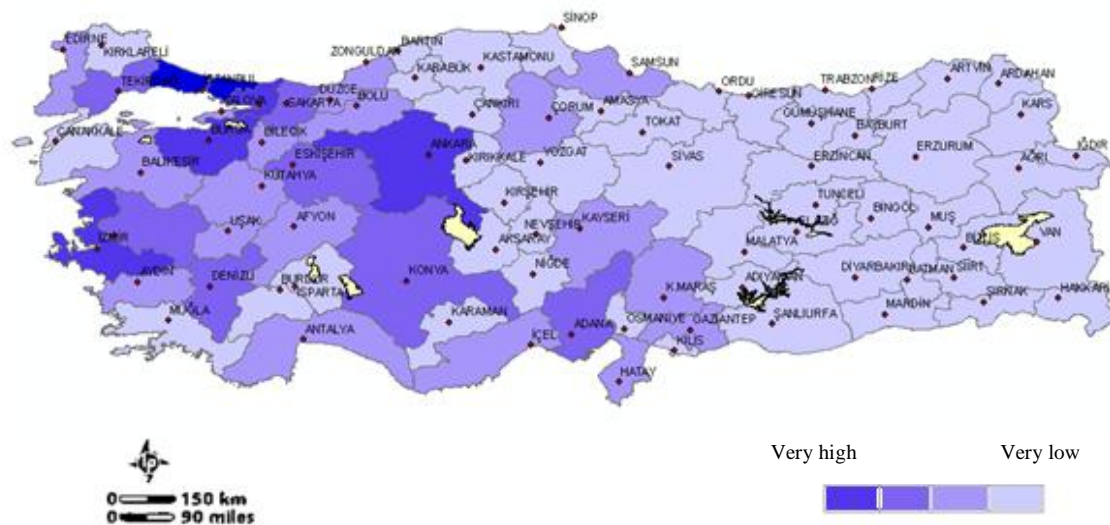


Figure 5.10: Market Accessibility in Turkey

The darker the colours, the less demand there is for the intermediate goods production and consumption in that province. Figure 5.8 shows that some provinces appear as significant and they represent the regional capital of the production of intermediate

goods. Because of their accessibility, the provinces in the middle parts of Turkey are more advantageous than the provinces in the periphery. In some provinces such as Izmir, Istanbul, Adana, Diyarbakir, Gaziantep, Erzurum and Van, the demand for intermediate goods is crucial in the local economy.

5.2.8 Local Sectoral Specialization

“Specialization provides an essential link between the technical and spatial conditions of economic progress” (Lampard, 1955: 88)

Studies of the growth of urban systems and urban industrial agglomeration have drawn attention to the intimate relationship between the principles of specialization and the division of labour growth (Isard, 1960; Lampard, 1955; Phelps and Ozawa, 2003; Scott, 1982, 1988a; Sayer and Walker, 1992; Storper and Walker, 1989; Walker, 1985). Particular sectors and forms of innovation have become an important part of the societies and they are hence visible in the manner in which specialization and the division of labour assume a spatial expression (Phelps and Ozawa, 2003). Many countries have used the concept of specialization as an industrial policy to support and identify specific industries that have the potential to grow.

Specialization has also played a big part in Turkish regional policy since it has been used proactively in national development plans. After the introduction of ‘Specialized Industrial Zones’ with the 5th Five Year Development Plan (FYDP), policies have been introduced to increase the potential of sectors to accelerate economic

development. In the 9th FYDP (2007-2013), the policy idea of supporting clusters is emphasized to support innovation, increase productivity and employment, to increase collaborations and to enhance national and international competitiveness. Specialization has been integrated with the idea of competitiveness and clusters have been used to encourage specialization of industries. To do this, ‘Organized Industrial Zones’ (OIZs) are considered as the places where an environment for clustering is created. Support for clustering under the leadership of driving sectors is ensured within a strengthened social network. In this framework, the creation of mechanisms which support local clusters and increase collaboration amongst agents is encouraged.

In the current study, the measure is developed using Isard’s specialization index (1960). When addressing localization, Isard (1960) analyzes the spatial distribution of one industry and compares that to the spatial distribution of all industries combined. Likewise, in addressing specialization the analyst typically looks at the functional diversity of one region and compares that to the functional diversity of all regions combined (i.e., the nation). This measure captures the amount of concentration an economy shows in its various industries or sectors, relative to some benchmark economy. The coefficient is really a specific version of the well-known index of dissimilarity, which has wide application in the social sciences (Mulligan and Schmidt, 2005; Mulligan and Vias, 2006). As expected, the index is highly correlated with several other inequality measures, including the well-known Gini index (Dewhurst and McCann, 2002). In the current study, this measure is built on counts of business establishments by sector in each city in 2002, having been assigned to the

categories of the Classification of Economic Activities in the European Community (NACE 1.1) divisions⁸⁶ (Table 5.15).

ADANA	389	DİYARBAKIR	274	KOCAELİ (İZMİT)	381	TRABZON	310
ADIYAMAN	245	EDİRNE	251	KONYA	378	TUNCELİ	136
AFYON	296	ELAZIĞ	275	KÜTAHYA	307	ŞANLIURFA	290
AĞRI	192	ERZİNCAN	206	MALATYA	280	UŞAK	288
AMASYA	238	ERZURUM	250	MANİSA	348	VAN	227
ANKARA	432	ESKİŞEHİR	339	K.MARAŞ	302	YOZGAT	245
ANTALYA	386	GAZİANTEP	361	MARDİN	213	ZONGULDAK	284
ARTVİN	196	GİRESUN	228	MUĞLA	331	AKSARAY	249
AYDIN	344	GÜMÜŞHANE	154	MUŞ	158	BAYBURT	144
BALIKESİR	367	HAKKARİ	140	NEVŞEHİR	255	KARAMAN	227
BİLECİK	232	HATAY	342	NİĞDE	239	KIRIKKALE	244
BİNGÖL	155	ISPARTA	305	ORDU	284	BATMAN	194
BİTLİS	153	İÇEL	363	RİZE	229	ŞIRNAK	134
BOLU	251	İSTANBUL	458	SAKARYA	323	BARTIN	207
BURDUR	246	İZMİR	435	SAMSUN	346	ARDAHAN	123
BURSA	409	KARS	172	SİİRT	165	IĞDIR	165
ÇANAKKALE	292	KASTAMONU	250	SİNOP	211	YALOVA	233
ÇANKIRI	214	KAYSERİ	354	SİVAS	273	KARABÜK	236
ÇORUM	293	KIRKLARELİ	255	TEKİRDAĞ	360	KİLİS	163
DENİZLİ	358	KIRŞEHİR	222	TOKAT	284	OSMANİYE	255
						DÜZCE	259

Table 5.15: Total number of business establishments of each city in Turkey in terms of sectoral specialization (NACE 1.1) (TUIK, 2002)

⁸⁶ NACE 1.1 (2002) division is composed of Agriculture, hunting and forestry; Fishing; Mining and quarrying; Manufacturing; Electricity, gas and water supply; Construction; Wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods; Hotels and restaurants; Transport, storage and communication; Financial intermediation; Real estate, renting and business activities; Public administration and defence, compulsory social security; Education; Health and social work; Other community, social and personal service activities; Activities of households; and Extra-territorial organizations and bodies (Eurostat Commission Website)

Analysis shows that significant sectoral specialization appears in the metropolitan cities of Turkey, i.e. İstanbul, Ankara and İzmir (Figure 5.10). It is not surprising that some cities spatially close to metropolitan cities also have highly dense sectoral specialization such as Tekirdağ, Yalova, Eskişehir, Aydın and Manisa. However, it is very surprising to see some of the ‘Anatolian Tigers’⁸⁷ identified as being outside that specialization. The term is most often used for Denizli, Gaziantep, Kayseri, Bursa, Kocaeli, Kahramanmaraş. Çorum, Denizli, Gaziantep and Kahramanmaraş, in particular, are also known for their endogenous development potential (Eraydin, 2002a). Amongst those cities, while Çorum and Kahramanmaraş are not seen as very

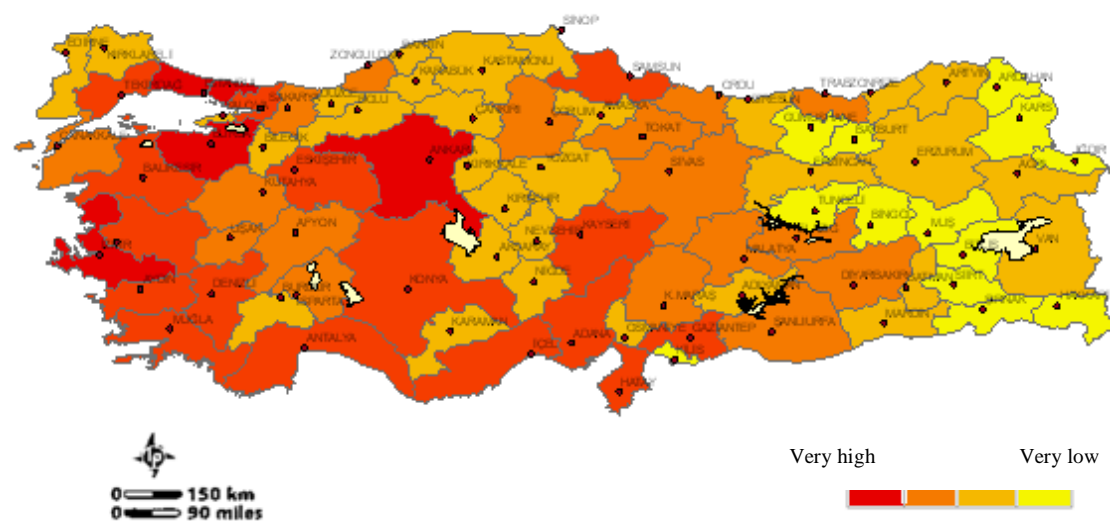


Figure 5.11: Total number of business establishments of each city in Turkey in terms of sectoral specialization (NACE 1.1), 2002

⁸⁷ ‘Anatolian Tigers’ is a term internationally used in the context of the Turkish economy to refer to and to explain the phenomenon of a number of cities in Turkey which have displayed impressive growth records since the 1980s, as well as to a defined new breed of entrepreneurs rising in prominence and who can often be traced back to the cities in question and who generally rose from the status of SMEs. (‘Anatolian Tigers or Islamic Capital: Prospects and Challenges’, Ömer Demir; Mustafa Acar; Metin Toprak, *Middle Eastern Studies*, Volume 40, Issue 6, November 2004, pages 166 – 188.)

specialized as other ones, Bursa has become very specialized in various sectors. However, a majority of the provinces in the East Anatolian Region and the South Eastern Anatolian Region show almost no specialization. These regions are also considered as less developed regions of Turkey and therefore the analysis of the current study shows some correlation between the specialization level and under development. This raises important questions about the local impact of these policies.

5.3 Conclusion

The purpose of the analysis presented in this chapter is to calibrate the theoretically derived drivers of local growth in the Turkish context. Unfortunately, the calibration of these drivers is not a straightforward process. There are two main challenges. First is related to the description of what these dimensions correspond to in the Turkish context. Second is about the data reliability and robustness. Although the secondary data in this analysis are collected from major institutions in Turkey, there are always problem with data not just because they are unreliable, but in some cases, they can be partially relevant, i.e. technological leadership, institutional thickness, market accessibility. To overcome these problems, alternative indicators are used and analysed to find out the most appropriate variable. Fortunately, the qualitative part of the analysis will also enable the researcher to reflect on those challenges. Focus groups in that respect will provide a critical input for the theoretically calibrated drivers and the results generated by the econometric model.

Technological leadership is defined as the proportion of employment in a province in ‘High Technology Manufacturers’, a category defined by the OECD (see OECD, 2005) criteria. *Knowledge creation and access to information* is an index of access to information. This measure considers the total number of ‘knowledge workers’ in each province. The definition of this category is based on the International Standard Classification of Occupations (ISCO). After calculating the total number of these workers, ‘the accessibility index’ of Turkey which is created by calculating the time distance between each city is then laid over these data to calibrate the index. *The concentration of SMEs* is measured as the percentage of SMEs in each province. *Institutional support* is calibrated as the proportion of a province’s institutions that promote and support industries such as public and Higher Education laboratories. This measure is statistically significant amongst various other alternatives such as total number of NGOs, municipality expenditures, public infrastructure, amount of investment incentives and collaborative knowledge creation facilities. *Human capital* is measured as the percentage of working population without primary school degrees and hence for this analysis has a negative sign. *The power of large corporations* is developed from the “Top 500 industrial enterprises” 2008 list of ISO. For each corporation the measure of size, the net productive profit, has been assigned to the province within which it is headquartered and standardized across provinces as “production profit per resident person in a particular province”. *Market accessibility* is calibrated through a simple interaction model in which size is measured as employment in manufacturing and construction, and distance is measured as road distance. It is, in essence, a measure of the market at a distance for each province of Turkey. Finally *sectoral specialization* is developed using Isard’s specialization

method (1960) and is built on counts of business establishments by sector in each city in 2002, having been assigned to the categories of the Classification of Economic Activities in the European Community (NACE 1.1) divisions.

In the next chapter, these drivers are used in econometric models developed to explore the processes shaping regional economic development in Turkey. In this way, it should be possible to assess the relevance of the theorised processes of local economic growth that have been developed in the last half century to understanding regional growth patterns in the developing country context of Turkey.

6 MODEL AND EMPIRICAL FINDINGS FROM ESTIMATING REGRESSION MODELS ON DRIVERS OF REGIONAL GROWTH

6.1 Introduction

The only way to make sense of any complex system, be it global weather or the global economy, is to work with models – simplified representations of that system which you hope help you understand how it works. Sometimes models consist of systems of equations, sometimes of computer programmes (like the simulations that give you your daily weather forecast); but sometimes they are like the model airplanes that designers test in wind tunnels, small-scale versions of the real thing that are more accessible to observation and experiment... Never trust an aircraft designer who refuses to play with model airplanes, and never trust an economic pundit who refuses to play with model economies (Krugman, 2008, p. 18).

Economic models are one of the most important tools for the analysis of regional development. The regional science literature has a broad range of applications for these modelling methods, understanding and helping to find solutions to a wide range of socio-economic problems. In economics, as Krugman spoke of it, models are also central in understanding complex systems such as the global economy. The purpose of this chapter is to develop an understanding of the local and regional dynamics of economic development in Turkey by constructing an econometric model. The chapter is composed of two parts. In the first part, the reasons for using such a model are

discussed to help clarify and integrate the various theoretical concepts that have been discussed in Chapter 3. The chapter explores the core concepts of the model that is used in the current study. In addition, the first part provides an introduction to econometric analysis which focuses primarily on the selection process for deciding which statistical technique is the most appropriate in a given case with some discussion of the ‘art’ of economic model building. In the second part, the empirical findings from the modelling exercise are presented. In addition, some problems with estimation encountered in the modelling exercise are illustrated by using examples.

6.1.1 The Importance of Modelling and Some Preliminary Thoughts

Before going into the details of the model, it is crucial to discuss the importance of implementing a model to explore the meaning of the dataset and the problem under analysis. It can be argued that this way of creating knowledge is a dogmatic approach and it is not always directly relevant to the problem built on secondary data. According to Granger (2009), this is not true for two main reasons. First, when the model is seriously limited, there are various pragmatic changes that can be considered to produce a model that is both acceptable and useful. So, rather than being dogmatic, the approach that is being used in the current study aims at being pragmatic, and concerned with practical issues, consequences and values.

Abandoning a dogmatic use of an econometric model for a pragmatic approach in this study does not compromise the usefulness of the model for two main reasons. First, such pragmatic attempt will enable the researcher to think critically on each driver and

make an informed decision about the selection of drivers based on a sound theoretical framework, instead of attempting to possess absolute truth as justification is unassailable in a dogmatic approach. Second, the theoretical prepositions of theories of local and regional economic development are not straightforward to translate into testable dimensions and hence some compromises have to be made. These compromises are acceptable as long as empirical modelling is based on theories and the theoretical dimensions are testable. Therefore, the model in the current thesis is structured on a careful analytical and modelling approach with appropriate data drawn from comprehensive secondary sources. Granger (2009, pp.262-263) also states some possible advantages of using this kind of research approach. According to him, some reasonable answer that is available quickly is much better than a poor, constrained answer available on time or the best answer that is delivered too late. Also it is possible to consider a variety of alternative pragmatic approaches, and then compare the outcomes. There are some disadvantages that arise by using this kind of approach related to the confidence intervals of the data. However, this problem is generally overcome by relying on advanced statistical software programs. It can be argued that those programs also incorporate assumptions that make them not reliable. This study acknowledges this argument and therefore it explains the empirical results within given explanatory percentages.

The second reason why the modelling approach used in this study is not dogmatic is that the modelling results have been integrated with qualitative information which are collected from discussions with development professionals in various regional development agencies in different parts of Turkey. This allows the researcher to

understand the model and its outcomes in a more comprehensive, pragmatic and systematic way. After the empirical analysis of the model, document analysis and focus group discussions are used to assess the robustness of the quantitative analysis so that the quantitative analysis can produce a more accurate picture or balancing points of analysis. The qualitative analysis enables the inclusion of local views, foster region-wide dialogue and knowledge exchange which would enrich the meaning of the quantitative analysis. This enables the quantitative analysis be open to revision and reassess in connection with the nature of the drivers of Turkish local and regional development being investigated. Therefore, the equations and formal approaches used in this chapter are no more than a scaffolding to help construct an intellectual edifice.

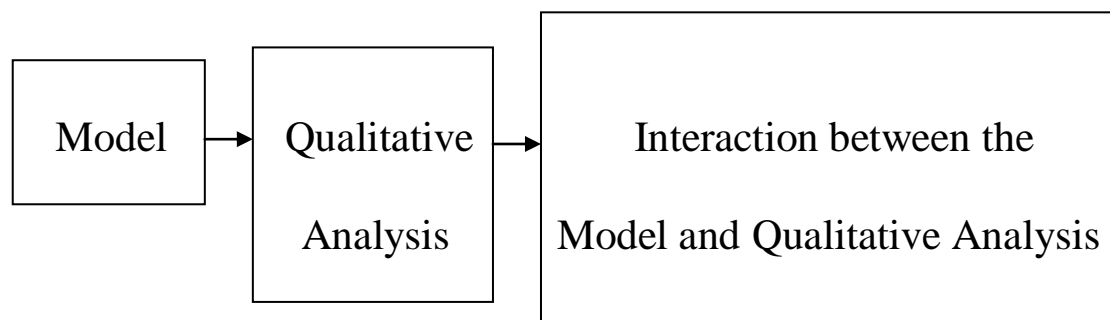


Figure 6.1 Process of interaction between the model and the interviews

This move from pure information or lack of information to real knowledge is important, because as has been discussed in the previous chapters, there have been various challenges during the research study such as defining the best proxy for the explanatory variables. There must be a process through which knowledge can be created from the mass or lack of information available. Figure 6.1 represents the

interaction between the model and the interviews as a way to reconstruct that deficit and gain knowledge about the study that the current thesis is based on. In Kant's book, *Kritik der reinen Vernunft*, which in F. Max Müller's translation (Kant, 1966) became *Critique of Pure Reason*, and which is an analysis of the powers of human reason in gaining knowledge about the world independently of all experience, he argues that knowledge begins with experience but he insists that all knowledge need not arise from experience. Kant calls knowledge gained from experience as *empirical knowledge*. He refers to all other knowledge as *knowledge a priori* in which reasoning is needed to ascertain the phenomenon. This can be obtained independently of experience as in science. He refers to such knowledge as *pure knowledge* (p.3). This is a study in which *pure knowledge* has been created with the help of *empirical knowledge*. The current chapter focuses on the first part of that interaction above that is the model.

6.2 Econometric Models

Econometrics can be defined as the application of statistical methods to economic data. An econometric analysis begins with the formulation of a mathematical model that is grounded in economic theory. The model is then specified in a form that can be tested with data using selected techniques. The results of testing the model are finally analysed in order to determine whether the underlying economic theory provides a satisfactory explanation of the empirical results (Greene, 1990; Griffith, Hill and Judge, 1993; Johnson and DiNardo, 1997). According to Drennan and Saltzman (1998, p.138), econometric models in research and professional work are used to:

- test the validity of theories since formal statistical methods of analysis enable the researcher to test the validity of the theories by accepting or rejecting the hypothesis that represent real world phenomena,
- forecast change in such measures as gross domestic product or consumer price index, and
- predict the likely effects of policy decisions. This option is used to understand ‘What if...?’ questions in policy analysis such as what if gross domestic product rises or falls by a specified amount in 10 years or what if wage rates remain the same in the following two decades.

However, although economic methods are one of the most important tools for the analysis of regional development, there has been a tendency for them to become less significant in economic geography when ‘new regionalism’ which is based on institutions, individual agencies and social regulations started to emerge. According to its leading proponents, this represents a ‘new’ perspective on understanding the process of regional growth and change that is capable of providing clarity, rigour and relevance to a field of research that has been characterized by anti-clarity, anti-rigour and anti-relevance (Overman, 2004; Krugman, 1991). However, this type of rationale has been repudiated by many economic geographers since they underestimate social underpinnings driving local economic growth. Quantitative geographic research informed by critical perspectives has been and still is an active area of research in transport, economic, and urban geography (McLafferty and Preston 1996; Wyly 1996;

Rigby and Essletzbichler 1997; Plummer and Taylor 2001a; Schwanen, Kwan, and Ren 2008; Bergmann, Sheppard and Plummer 2009; Ren and Kwan, 2009). Although many have questioned the adequacy of quantitative methods, it has been argued that quantification can potentially make rich contributions to understanding and addressing various research areas (McLafferty 1995; Moss 1995; Plummer and Sheppard 2001; Sheppard 2001; Kwan 2004).

Recently, there have been some attempts to understand the dynamics of regional growth through an identification of its underlying internal and external forces and modelling of their interaction in studies of regional development (Brookfield, 1975; Lucas, 1988; Martin and Sunley, 1998; Plummer and Taylor, 2001a; Coe et al., 2004). However, the real world situations that have been analysed empirically have focussed on regions in economically advanced and technologically innovative economies. These studies do not exist for less developed countries and their regions that suffer from poverty, unemployment and backwardness. In those countries, the broader picture of the dynamics of regional development, particularly its social and political origins and the overall changes in regional inequality, have remained elusive and vague.

Similarly, economic theories sometimes cause some confusion because many of them are highly abstract or simplified and they change over time. However, although they seem to be changed, the core concepts of the theories remain the same as old theories are revisited. Another problem can be caused by the dataset. The data evidence is problematic because economic values are inaccurately measured and many important

variables are very difficult to rationalize or even observe. The previous chapter gives a detailed explanation for the selection of variables and some problems the researcher came across during this rationalization and observation of the variables. Therefore, there are many challenges for those who want to build an empirical model. Fortunately, there is no single best way of approaching the question of how to specify an empirical model (Granger, 1999) as long as they are meaningful. By using both quantitative and qualitative methods, the current study enables the researcher to triangulate the insights of both economists' and geographers' ways of knowing.

6.2.1 The Model

Economic modelling is concerned with measuring how one variable is related to other variables. The basic model in the current study is in the form of a linear multiple regression equation which is derived from a simple linear regression model (The proof is illustrated in Appendix 1). Regression analysis is concerned with describing and evaluating the relationship between a variable, Y , and one or more variables, X , where Y is the dependent variable (regressand, explained variable, endogenous variable, target variable), X s are the independent variables (regressors, explanatory variables, exogenous variables, control variables). Unlike in economic theory, in econometrics the specification of the relationship, $Y = f(X)$ is a statistical relationship which does not give unique values of Y for given values of X but can be described in probabilistic terms.

For observations $i = 1, 2, \dots, n$

$$Y_i = \alpha + \beta X_i + \varepsilon_i \quad \text{where } \varepsilon_i \sim N(0, \sigma^2)$$

which implies Y has a normal distribution. Basically, the standard normal distribution is a normal distribution with a mean of 0 and a standard deviation of 1.

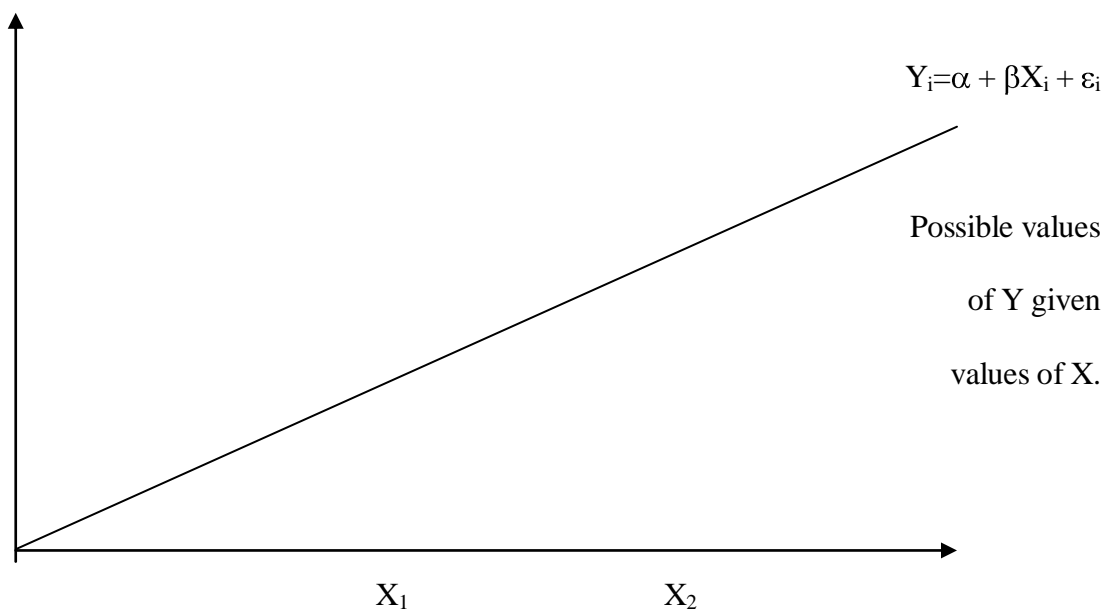


Figure 6.2 Simple graph of a regression equation

The regression equation can be broken down into:

$Y_i =$	α	+	βX_i	+	ε_i
	↑		↑		↑
	constant		slope		error or disturbance term.

There are four main reasons why there is an error term (ε_i) in the equation. First, there is an unpredictable element of randomness in human response. Although the data that have been used in the current study is taken from the State Institute of Statistics in Turkey, the problem occurs due to the lack of robustness of the database. During the collection of the data, for example, the State Institute of Statistics in Turkey uses sampling technique that is a selection process of the questionnaires from whom the responses are collected, and hence this method is based on human response. Therefore, it is almost impossible to achieve randomness in the dataset. Second, there is an effect of a large number of omitted variables, each being insignificant over the whole sample. This can be either in the dataset or in the equation (as one of the variables) but here it is focused on the dataset. However, it is also impossible to overcome this problem since the researcher can only access the final dataset provided. Third, there is a measurement error. This can be described as the difference between the actual value of a quantity and the value obtained by a measurement. To reduce the measurement error, the current study applies various statistical procedures to adjust it. Moreover, getting feedback from the interview part of the research improves or reduces the random error. And finally, the data can show inaccuracies. The question about the data inaccuracy is whether the data can be trusted as valid and free of confounding variables. Similar to the previous point, the aim here is to increase the confidence level of the dataset by implementing various statistical procedures. This last point also raises the question of what is measured and what is required for that measure. To provide the best explanatory dataset, the researcher sometimes has to use some proxy measures like in the case of institutional support and the power of large

corporations. This affects the confidence level of the dataset but there is no way to measure this statistical deviation.

Ordinary least squares estimates are the best linear unbiased estimates assuming the basic assumptions hold (the reason why it is so is explained in Appendix 1). Since there are going to be more than one independent variable in the current study, the basic model is built on:

$$y_i = \beta_1 x_{i1} + \cdots + \beta_p x_{ip} + \varepsilon_i \quad i = 1, \dots, n,$$

where β s are the coefficients or parameters to be estimated, ε is a stochastic error or disturbance term, subscript p is the number of explanatory variables, subscript i represents the i -th sample or observation and n is the sample size. From seven ‘institutionalist’ regional development theories (Chapter 3), eight hypothesised drivers of regional growth have been recognized (Plummer & Taylor 2001; Ersoy and Taylor, 2011).

$$\ln R(it) = \beta_0 + \beta_1 \ln R(it - T) + \beta_2 HITECH + \beta_3 \ln(INFOACC) + \beta_4 MOLCN + \beta_5 PROT + \beta_6 DEGREE + \beta_7 TOTPOP + \beta_8 \ln(MKTACC) + \beta_9 SPEC + \varepsilon_{i,t,t-T}$$

Theoretical dimension	Variable	Description of variable
Technological leadership	HITECH	The proportion of employment in a province in 'High Technology Manufactures'; Source: 2002 General Census of Industry and Business Establishments
Knowledge creation and access to information	INFOACC	An index of access to information; Source: Turkish Statistical Institute General Census of Business Establishments 2002
Concentration of SMEs	MOLCN	The percentage of SMEs; Source: Turkish Statistical Institute General Census of Industry and Business Establishments 2002
Institutional support	PROT	The total number of institutions that promote and support industries such as public and Higher Education laboratories; Source: Small and Medium Enterprises Development Organisation Regional Development Research Report, 2006
Human capital	NODEG	The percentage of the working population without a degree; Source: 2008 Address Based Population Registration System, Population System Database
Power of large corporations	TOTPOP	The total net profit of production for a particular province; Source: ISO, 2008 "Top 500 industrial enterprises" list
Market accessibility	MKTACC	An index of market access to primary goods: Source: Turkish Statistical Institute General Census of Business Establishments 2002
Sectoral specialisation	SPEC	The counts of business establishments in each city in 2002, having been assigned to NACE 1.1 divisions; Source: Turkish Statistical Institute General Census of Business Establishments 2002

Table 6.1 Growth drivers with their descriptions

(Adopted after Plummer and Taylor, 2001a)

The eight variables and their significance as growth drivers in the modelling analysis are nested within the following model based on multiple regression model (Table 6.1). *Technological leadership* is defined as the proportion of employment in a province in ‘High Technology Manufacturing’, a category defined according to the OECD criteria (see OECD, 2005). *Knowledge creation and access to information* is an index of accessibility to information. This measure considers the proportion of ‘knowledge workers’ in each province. The definition of this category is based on the International Standard Classification of Occupations (ISCO). After calculating the total number of these workers in each province, the knowledge creation and access to information index for Turkey is created as a gravity interaction function by using a simple interaction model based on the number of knowledge workers in each province as a measure of size and distance between provinces measured as time distance. *The concentration of SMEs*, as an index of small firm integration in a province, is measured as the percentage of SMEs in each province. *Institutional support* is calibrated as the proportion of a province’s institutions that promote and support industries such as public and Higher Education laboratories. This measure is correlated significantly with a number of alternative measures, such as the total number of NGOs, municipality expenditures, public infrastructure, the value of investment incentives and collaborative knowledge creation facilities in a province indicating the broad range of this concept. *Human capital* is measured as the percentage of the working population without primary school degrees and hence for this analysis has a negative sign. *The power of large corporations* is developed from the “Top 500 industrial enterprises” 2008 list of Istanbul Chamber of Industry (ISO). For each corporation the measure of size used is net productive profit, which has been

assigned to the province within which it is headquartered. For the analysis, the measure is expressed as production profit per resident person in a particular province. *Market accessibility* is calibrated through a simple interaction model in which size is measured as employment in manufacturing and construction, and distance is measured as road distance. It is, in essence, a measure of the market at a distance for each province of Turkey. Finally *sectoral specialization* is developed using Isard's specialization index (Isard, 1960) and is built on counts of business establishments by sector in each city in 2002, with establishments having been assigned to the categories of the Classification of Economic Activities in the European Community (NACE 1.1) divisions.

Different as the theories of local and regional economic performance appear, it is argued here that each involves different permutations and combinations of eight dimensions that are currently thought likely to enhance local economic capacities to create growth and enable regions to cope with change. The purpose of the analysis is to understand which of the theories or elements of these theories provide the fullest explanation of regional growth in Turkey.

6.3 Some Problems with Estimation

Economic models are very common in research and professional work because they are flexible and they can be used in a variety of ways. As has been discussed before, disadvantages as a result of using a model can be taken into consideration in different ways. First, with the use of formal statistical methods of analysis, it is possible to

employ such models with appropriate data to test, in a rigorous manner, the validity of theories they represent about real world phenomena. In the Chapter 5, for example, in addition to correlating variables with each other, other statistical techniques such as principle component analysis are applied to the data to check whether the results are overlapping with each other. As such, these formal methods make it possible to pose hypotheses and then accept or reject such hypotheses in a structured, formal testing process. Second, such models are often used to forecast or predict values of their dependent variable under various conditions. For example, in the current study, the model is constructed to test the relationship between the unemployment changes and development theories and to understand the effects of those development theories in Turkey. However, while using economic models, it is very important to deal with violations of the assumptions. There are two kinds of violations of an assumption. First is related to specification errors and the second occurs when the variance of the error term is not constant.

6.3.1 Specification errors

Drennan and Saltzman (1998, p.157) consider three ways in which an econometric model may be misleading. It can occur when an irrelevant or extraneous variable is included in a model; a relevant explanatory variable is omitted from a model; and/or the functional form of the theoretical model is incorrectly specified. Here, the results of using OLS under each of these three types of misspecification are reviewed with different examples. Also misspecifications are explored by suggesting some strategies for making improved estimates of the coefficients.

6.3.1.1 Including an irrelevant variable

The addition of an irrelevant variable is the easiest one amongst others to treat. It is because (a) the OLS estimators of each of the coefficients in the incorrectly specified model are unbiased, consistent but inefficient estimators of the coefficients in the true, correctly specified model and (b) the expected value of the estimator of the coefficient of the extraneous variable is zero.

Theoretical Model	OLS Assumption Violation	Test of Presence of Violation	Some Recent Studies that Show This Violation
True model $Y_i = \beta_0 + \beta_1 X_{1i} + \varepsilon_i$	None		Reeves and Chen, 2007; Yang <i>et al.</i> , 2008; Orescanin <i>et al.</i> , 2009; Tian and Puntanen, 2009;
Incorrectly specified model $Y_i = \beta_0^* + \beta_1^* X_{1i} + \beta_2^* X_{2i} + \varepsilon_i^*$	An irrelevant variable (X_2) has been added	If the null hypothesis ($H_0: \beta=0$) is not rejected, X_2 is judged to be an irrelevant variable	

Table 6.2 Summary table for the addition of an irrelevant variable (Source: modified after Drennan and Saltzman, 1998, p. 159)

The points above are summarised in Table 6.2. The first column specifies the two theoretical models. Second column lists the assumption violation. The third column records relevant estimators of each of the models. The last column states some recent studies that have come across similar violations. In the current model, this problem has been overcome by checking the significance levels of the variables and the coefficient values.

6.3.1.2 Omitting a relevant variable

Omitting a variable that theory says should be included in a model has more serious implications than does the error of including an irrelevant explanatory variable. In general, including an irrelevant variable creates a situation where the OLS estimates are unbiased and inefficient; omitting a relevant variable gives rise to a situation where the estimators of both the coefficients and the variances can be biased.

The table 6.3 summarizes the main points of the situation when there is an omission of a relevant variable. As expected for the true model (I), the OLS estimators of the parameters are BLUE and those of the variances are unbiased. However, the expected values of the OLS estimators of the coefficients (β_j^*) of the variables included in the misspecified model (II) are biased and inconsistent (i.e. the bias in the estimates will not be eliminated by increasing the sample size). More specifically, if the omitted variable (X_2) is correlated with the included variable (X_1), then OLS estimates of the coefficients are biased and inconsistent. In the current model, this problem has been

Theoretical Model	OLS Assumption Violation	Test of Presence of Violation	Some Recent Studies that Show This Violation
True model $Y_i = \beta_0^* + \beta_1^* X_{1i} + \beta_2^* X_{2i} + \varepsilon_i^*$	None	a) R ² b) t-test c) residuals d) Durbin-Watson e) Ramsey's RESET f) Wald's test g) Hausman's test h) Likelihood ratio test i) Lagrange multiplier test	Barker and Miller, 2008; Thomas and King, 2008; Ventosa, 2010;
Incorrectly specified model $Y_i = \beta_0 + \beta_1 X_{1i} + \varepsilon_i$	A relevant variable (X ₂) has been omitted		

Table 6.3 Summary table for the omission of a relevant variable (Source: modified after Drennan and Saltzman, 1998, p. 161)

overcome by doing Wald's test which is embedded in the software programme for this purpose.

6.3.1.3 Nonlinearities in the model's functional form

In addition to ‘over specifying’ or ‘under specifying’ a model, it is also possible for the functional form of a model to be misspecified. For example, specify a linear model of the form

$$Y_i = \beta_0 + \beta_1 X_{1i} + \varepsilon_i$$

When, in fact, the true underlying model is nonlinear, as follows:

$$Y_i = \beta_0^* + \beta_1^* X_{1i} + \beta_2^* X_{1i}^2 + \varepsilon_i^*$$

In this and similar cases, the model would be underspecified in that relevant variables (e.g. the power term of X_1) that should be included in it are omitted. Under these conditions, OLS estimators would, in general, be biased and inconsistent. Even if the same variables are specified in both equations (i.e. the true model and the incorrectly specified model) but in different functional forms (e.g. linear vs. power function, log vs. log linear) the estimators of the incorrect model will provide incorrect results of the assumed theoretically correct model. In the analysis, for example, this problem has been overcome by taking standardized values of the independent variables and taking the log of the dependent variables in the equation.

6.3.2 The variance of the error term is not constant

One of the assumptions of the basic classical linear regression model is the homoscedasticity of the disturbance of the error variances. This assumption means that the variance around the regression line is the same for all values of the predictor variable (X). The plot shows a violation of this assumption. For the lower values on the X-axis, the points are all very near the regression line. For the higher values on the X-axis, there is much more variability around the regression line. The failure of this assumption is known as heteroscedasticity, implying that variances are now unique for a particular t.

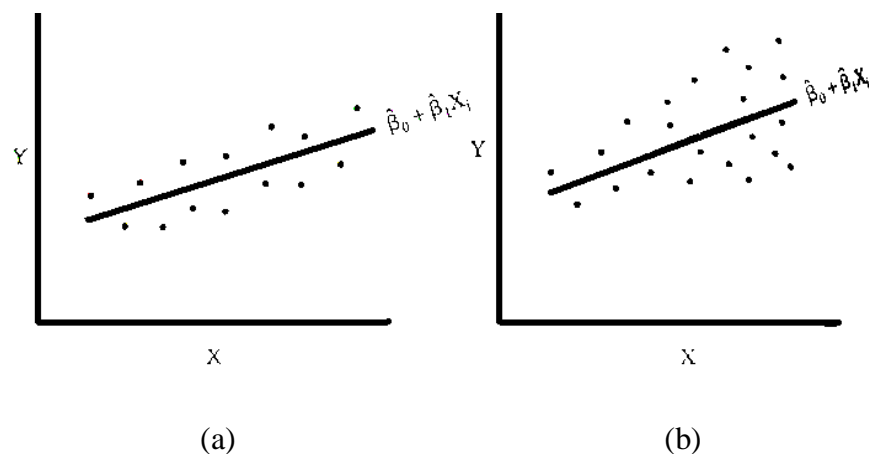


Figure 6.3 Illustrations of (a) homoskedasticity and (b) heteroscedasticity

Effects of heteroscedasticity on ordinary least squares estimators

- (i) OLS are still both unbiased and consistent if other assumptions hold (constant variance of u_t was not required for either).

- (ii) However, estimators are inefficient - they do not have smallest variance and standard errors and there is a more precise estimator available.
- (iii) The usual estimators of the standard errors of coefficients are also biased, if based on assumption of $\sigma_t^2 = \sigma^2$, constant. Thus 't' ratios, F- tests etc. will all be inappropriate.

Deflating variables by some measure of size and transforming the data by taking logs are some possible solutions for heteroscedasticity.

6.4 Empirical Findings

Empirical econometric modelling is an integral aspect of the attempt to make econometrics a quantitative science (Hendry and Krolzig, 2003). However, this kind of modelling approach raises various methodological issues related to the selection of models or data evidence. Therefore, *a theory-data confrontation* remains crucial in an empirical analysis. According to Stigum (2003), economists establish either the empirical relevance of a theory (Bottazzi *et al.*, 2009; Tovar, 2009) or search for theoretical explanations for observed regularities in their data (Carson, 2010) during the empirical analysis. For example, Bottazzi *et al.* (2009) proposed a simple theory and tested the predictions of the theory on European venture capital investments for the period 1998–2001. Tovar (2009) studied the implications of loss aversion for trade policy determination and showed how it allows him to explain a number of important and puzzling features of trade policy. On the other hand, Carson (2010) studied

empirical regularity and theoretical structure of his empirical data on ‘the Environmental Kuznets Curve’ which claimed that environmental health indicators showed the inverted U-shaped curve. The current study focuses on the first way of theory-data confrontation which is built on establishing the empirical relevance of theories of regional economic growth that have been discussed in Chapter 3. The next section of this chapter explains the results of regression models developed to explain differential regional growth in Turkey.

6.4.1 Estimating a Regression Model for Turkey

This section presents an econometric analysis to identify the drivers of regional and local growth in Turkey. Different as theories of local and regional economic performance appear in this study, it is argued that each theory involves different permutations and combinations of eight dimensions that currently are thought likely to enhance local economic capacities to create growth and to cope with change. However, it is important to recognize that although these theories may share dimensions, those same dimensions are hypothesized to promote local growth in some theories and to retard it in others (Plummer and Taylor, 2001a). The purpose of the analysis is to understand which of the theories is providing an explanation for the regional growth in Turkey. Based upon final model specification, the statistically significant conditioning variables are identified. Following that, a dependent variable has been analyzed in accordance with the availability of the data. Labour force, employment and unemployment rates have been identified as potential dependent variables (see the previous chapter for more explanation and the correlation values of

these variables). Labour-force represents only a partial and imperfect indicator of the economic performance of a local economy since the performance of a place depends on different dimensions of the economy. In the current analyses, the rate of unemployment, rather than the growth rate in employment has been utilized as a dependent variable in a local economy since measuring economic growth in terms of employment growth can only explain the determinants of growth to the demand side of the labour market. In contrast, changes in the rate of unemployment are sensitive to changes both in the demand for labour and in the supply of labour (Taylor and Plummer, 2001). Therefore, those regions with lower unemployment rates have higher employment rates and are imputed to have better economic performance. Several studies utilize the unemployment rate as a dependent variable in their analyses. For example, Griffith *et al.* (2007) analyse the impact of product market competition on unemployment, and how it depends on labour market institutions. They find that increased competition reduces unemployment. Fu *et al.* (2010) study how industry specialization, diversification, and churning effect unemployment rates in Chinese cities. They show urban growth, market maturity measured by the proportion of private sector employment, and human capital can decrease the unemployment rate.

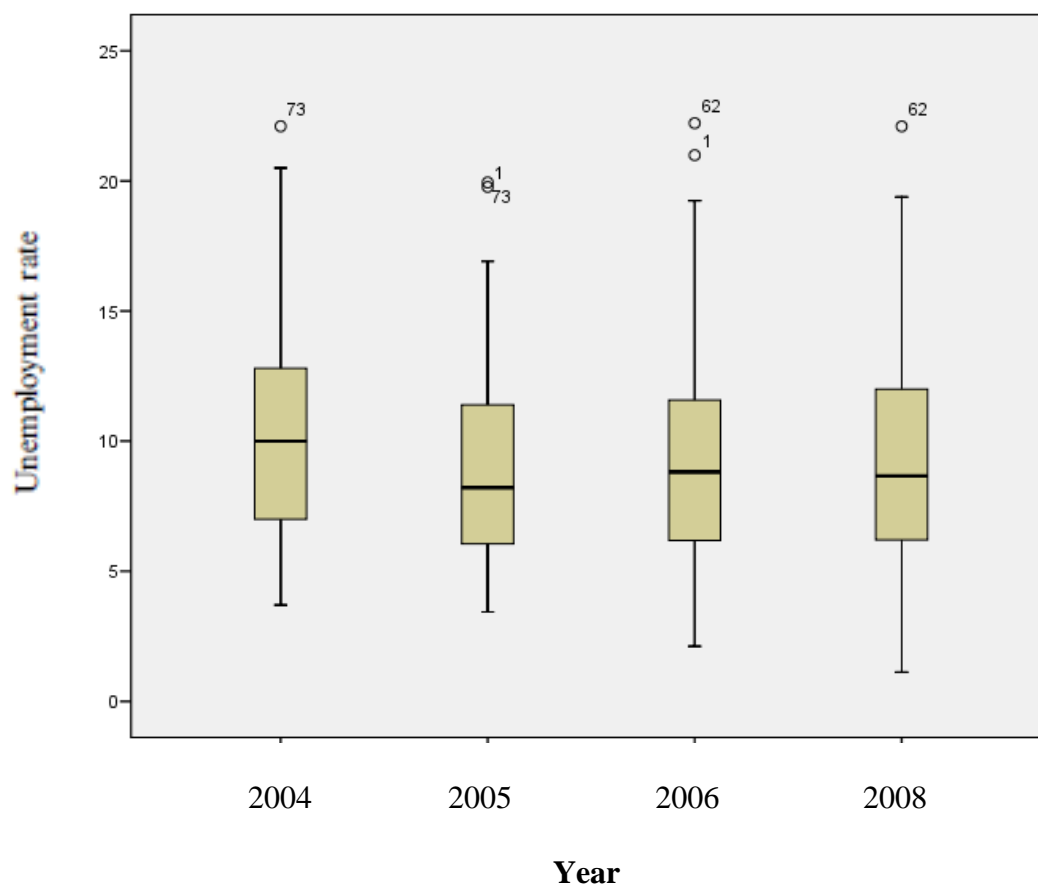


Figure 6.4 Unemployment dynamics, 2004-2008

		2004	2005	2006	2008
2004	Pearson Correlation	1	,946(**)	,884(**)	,811(**)
	Sig. (2-tailed)		,000	,000	,000
	N	81	81	81	81
2005	Pearson Correlation	,946(**)	1	,899(**)	,813(**)
	Sig. (2-tailed)	,000		,000	,000
	N	81	81	81	81
2006	Pearson Correlation	,884(**)	,899(**)	1	,944(**)
	Sig. (2-tailed)	,000	,000		,000
	N	81	81	81	81
2008	Pearson Correlation	,811(**)	,813(**)	,944(**)	1
	Sig. (2-tailed)	,000	,000	,000	
	N	81	81	81	81

** Correlation is significant at the 0.01 level (2-tailed).

Table 6.4 Correlation coefficients of the dependent variables between 2004 and 2008

	2004	2005	2006	2008
Mean	10,4012	9,084	9,2496	9,2358
Median	10	8,2143	8,8148	8,6658
Interquartile range	5,85	5,4	5,53	5,83
Standard deviation	4,09675	3,71873	4,12981	4,30697
Coefficient of variation	0,393873	0,409371	0,446485	0,466334

Table 6.5 Unemployment statistics, 2004-2008

The dynamics of regional unemployment for Turkey between 2004 and 2008 are summarized in Figure 6.4, Table 6.4 and Table 6.5. Statistics show that the unemployment ratios between 2004 and 2008 are strongly correlated to each other. Therefore, it is very likely to explain the following unemployment rate by looking at the previous year's unemployment rate. During this period, average unemployment across Turkey's provincial economies ranged from about 10.4% in 2004 to 9.2% in 2008. From 2005 to 2008, the average unemployment rate remained relatively stable between about 9% and 9.2%. In some provinces, much higher levels of unemployment persisted where their socio-economic structures predisposed their communities to higher levels of unemployment. For example, Adana, Tunceli and Sirnak provinces, represented by the code numbers 1, 62 and 73 in the analysis, have been identified as outlier provinces in some years (Figure 6.4). The locations of these provinces are identified in Figure 6.5.

Variable	Coefficient	Std. Error	t-statistics	Prob.
Constant	0.500601	0.1302	3.84	0,000
Unemployment	0.415004	0,05234	7.93	0,000
MKTACC	7.07392E-012	1.428E-010	0.0495	0,961
TOTPOP	-0.00594806	0,03171	-0,188	0,852
NODEG	0.00258605	0,04586	0.0564	0,955
INFOACC	-3.60572E-011	8.431E-011	-0,428	0,670
MLOCN	-0.207549	0.07289	-2.85	0,006
PROT	-0,0720259	0,02931	-2.46	0,016
SPEC	-0.0452056	0,01791	-2.52	0,014
HITECH	-0.0800033	0.1025	-0.780	0,438
Test Statistics { Probabilities = * donates significance at the 5% level ** donates significance at the 1% level				
$R^2 = 0.702762$, $F(9,71) = 18.65$ [0.000] **; $RSS = 3.8531808$				
Normality test $\chi^2(2) = 3.5211$ [0.1719]				
Hetero test : $F(2,68) = 0.28669$ [0.7516]				
Hetero-X test : $F(3,67) = 0.36781$ [0.7765]				
RESET test: $F(1,70) = 5.9810$ [0.0170]*; $DW = 1.55$				

Table 6.6 Model has been run without controlling the variables (81 observations)

accessibility of a province to intermediate markets within Turkey (Table 6.7). The measure is calibrated through a simple interaction model in which size is measured as employment in manufacturing and construction, and distance is measured as road

ADANA	3191200 63,1	DİYARBAKIR	3451188 6,03	KOCAELİ	1428511 078	TRABZON	65950 580,71
ADİYAMA N	2827535 3,31	EDİRNE	1588797 70,5	KONYA	3454655 77,4	TUNCELİ	25363 87,656
AFYON	1332070 23,5	ELAZIĞ	2722128 3	KÜTAHYA	1366863 56,6	ŞANLIURFA	68311 586,98
AĞRI	4944381, 404	ERZİNCAN	1209046 3,46	MALATYA	6277872 5,41	UŞAK	10512 8616
AMASYA	3536138 9,78	ERZURUM	2242530 6,05	MANİSA	5268593 71,9	VAN	11692 338,3
ANKARA	1403223 380	ESKİŞEHİR	3306338 61	K.MARAŞ	1317986 86,6	YOZGAT	48074 433,38
ANTALYA	1753131 82,2	GAZİANTEP	2873885 90,9	MARDİN	9896159, 65	ZONGULDAK	16293 9499
ARTVİN	7609734, 196	GİRESUN	4219117 7,98	MUĞLA	7834027 5,59	AKSARAY	32001 405,52
AYDIN	1693361 31,7	GÜMÜŞHANE	6191269, 817	MUŞ	3793871, 824	BAYBURT	31932 37,105
BALIKESİ R	2625584 35,8	HAKKARİ	1130062, 125	NEVŞEHİR	3566947 6,5	KARAMAN	48195 307,57
BİLECİK	1360853 59,8	HATAY	1104054 51,7	NİĞDE	3862439 3,52	KIRIKKALE	83103 427,07
BİNGÖL	6168552, 34	ISPARTA	8030393 8,89	ORDU	8047868 6,43	BATMAN	60024 55,384
BİTLİS	3807706, 621	İÇEL	1811488 73,5	RİZE	8301714 3,68	ŞIRNAK	15641 51,453
BOLU	1290629 75,6	İSTANBUL	4836891 237	SAKARYA	3866991 67	BARTIN	18977 750,44
BURDUR	3788821 0,84	İZMİR	1298017 317	SAMSUN	1085551 58,6	ARDAHAN	11625 40,747
BURSA	1785311 475	KARS	5235805, 516	SİİRT	4767064, 458	IĞDIR	14534 22,698
ÇANAKK ALE	8006834 9,77	KASTAMONU	5834594 7,33	SİNOP	1931074 6,17	YALOVA	10222 6227,5
ÇANKIRI	3120676 6,59	KAYSERİ	2602081 34	SİVAS	5455542 1,23	KARABÜK	89819 595,36
ÇORUM	1044798 83,8	KIRKLARELİ	9349329 8,22	TEKİRDAĞ	8192634 70	KİLİS	98598 68,244
DENİZLİ	4803630 82,2	KIRŞEHİR	2882635 7,51	TOKAT	7641132 1,96	OSMANIYE	25533 213,42
						DÜZCE	14622 4422,7

Table 6.7 Index values of the extent and nature of local demand (MKTACC) variable

distance. The aim is to create an index for each place of the magnitude of intermediate demand at a distance.

On the other hand, the power of large corporations (TOTPOP) is used in the study to assess how the actions of large corporations enhance or retard local growth and this has been measured as an index of corporate control for 2008 in Turkey which has been developed from the "Top 500 industrial enterprises" list of the Istanbul Chamber of Industry (Table 6.8). The number of each business has been assigned to the head office province and net production profit of each corporation has been added up to find the total net profit of production controlled from a particular province. To sum up, while an index has been used to describe the nature of local demand, the total net profit (in monetary terms) is used for large corporations. That means the variables are different from each other and hence those estimates of the variables cannot be comparable to make a proper forecasting about the model without controlling them. In this case, it is crucial to standardize the dataset to make the variables comparable. In the current study, the standardization process has been considered by taking z-scores of the independent variables.

The standardization of data is necessary to make the dataset comparable. According to Lin and Monga (2010), standardization is useful in explaining how the new structural economics provides a consistent framework for understanding growth in different countries. The best example for this is "the Penn World Table" which provides purchasing power parity and national income accounts converted to international prices for 188 countries for some or all of the years 1950-2004. The availability of

ADANA	279,7	DİYARBAKIR	0	KOCAELİ	194	TRABZON	574
ADIYAMAN	0	EDİRNE	623	KONYA	39202	TUNCELİ	0
AFYON	0	ELAZIĞ	0	KÜTAHYA	1744	Ş.URFA	0
AĞRI	0	ERZİNCAN	0	MALATYA	296	UŞAK	0
AMASYA	0	ERZURUM	220	MANİSA	0	VAN	0
ANKARA	26855	ESKİŞEHİR	1581	K.MARAŞ	1053	YOZGAT	0
ANTALYA	557	GAZİANTEP	2822	MARDİN	488	Z.DAK	494
ARTVİN	0	GİRESUN	0	MUĞLA	211	AKSARAY	0
AYDIN	118	GÜMÜŞHANE	0	MUŞ	111	BAYBURT	0
BALIKESİR	2565	HAKKARİ	0	NEVŞEHİR	0	KARAMAN	544
BİLECİK	0	HATAY	6860	NİĞDE	0	KIRIKKALE	0
BİNGÖL	0	ISPARTA	0	ORDU	0	BATMAN	0
BİTLİS	0	İÇEL	715	RİZE	845	ŞIRNAK	0
BOLU	885	İSTANBUL	113900	SAKARYA	144	BARTIN	0
BURDUR	248	İZMİR	12322	SAMSUN	3676	ARDAHAN	0
BURSA	8583	KARS	0	SİİRT	810	IĞDIR	0
Ç.KALE	126	KASTAMONU	350	SİNOP	299	YALOVA	0
ÇANKIRI	174	KAYSERİ	3449	SİVAS	0	KARABÜK	1066
ÇORUM	0	KIRKLARELİ	0	TEKİRDAĞ	241	KİLİS	0
DENİZLİ	3104	KIRŞEHİR	0	TOKAT	284	OSMANİYE	0
						DÜZCE	210

Table 6.8 The total net profit of production (x10⁶ TL) in each province (TOTPOP)

standardized data sets in these tables has stimulated interest in cross-country work that highlights systematic differences between high-growth and low-growth countries with regards to:

- (i) Initial conditions (such as productivity, human capital, demographic structure, infrastructure, financial development, or inequality;
- (ii) Policy variables of various sorts such as trade openness, macroeconomic stability, levels and composition of public spending, taxation, or regulation; and

- (iii) Institutional variables such as general governance indicators, administrative capacity, rule of law, protection of property rights, or corruption.

In the current study, the third attempt is based on the data standardization by means of z-score transformation. Z-scores are a special application of the transformation rules. The z-score for an item indicates how far and in what direction, that item deviates from its distribution's mean, expressed in units of its distribution's standard deviation. The mathematics of the z-score transformation are such that if every item in a distribution is converted to its z score, the transformed scores will necessarily have a mean of zero and a standard deviation of one. This process is very important as it has been discussed earlier, the variables have different unit scale values. There are various studies that have applied standardization to make the variables comparable in the dataset (Ersoz and Bayrak, 2008; Ho and Li, 2009; Zhou and Tao, 2009). For example, Ersoz and Bayrak (2008) analyzed the possible commonalities and disparities between the first 15 members of the European Union, and subsequently 9 countries from East and Central Europe and Turkey and they standardized their data to compare different countries. Ho and Li (2009) used the standardized income level and population size relative to their means in their empirical analysis. Zhou and Tao (2009) also used a standardization of data to examine the effects of social and economic factors such as government scale, privatization, openness, and education on regional corruption.

In the current study, the variables are standardized in the SPSS software program. Also, before running the model, a unit root test has been undertaken to check whether the variables are non-stationary using an autoregressive model. According to the unit root test (ADF Fisher χ^2 and ADF Choi Z-stat), if the null hypothesis is true, then a unit root is obtained which indicates that the time series under consideration is non-stationary. Test statistics (Probability is less than 1% for both) reject the null hypothesis which indicates that the variables are stationary.

According to the probability values of the figures, based on the final model specification for exploring regional growth in Turkey between 2004 and 2008, knowledge creation and access to information (INFOACC), local human resource base (NODEG), technological leadership (HITECH), sectoral specialization (SPEC), power of large corporations (TOTPOP) and extent and nature of local demand (MKTACC) variables are all insignificant (Table 6.9). The significance level here has been defined in three different categories. They are 1%, 5% and 10%. So, according to the test statistics, there is no relation between the unemployment rate and these insignificant variables in the current study. More controversially, some of these variables have opposite signs. For example, knowledge creation and access to information (INFOACC), sectoral specialization (SPEC) and power of large corporations (TOTPOP) have positive signs. However, since the dependent variable is

Variable	Coefficient	Std. Error	t-statistics	Prob.
Constant	-0.0259710	0.02961	-0.877	0,383
Unemployment	0,454698	0.05541	8.21	0,000
INFOACC	0.00247523	0.08469	0.0292	0,977
NODEG	-0.0403341	0,03893	-1.04	0,304
HITECH	-0.00271245	0.04420	-0.0614	0,951
SPEC	0.0611298	0.03820	1.60	0,114
MLOCN	-0.149190	0.03547	-4.21	0.000
TOTPOP	0.00941693	0.03510	0.268	0.789
MKTACC	-0.0323076	0,08929	-0.362	0,719
PROT	-0.0834262	0.03046	-2.74	0,008
Test Statistics { Probabilities = * donates significance at the 5% level ** donates significance at the 1% level				
$R^2 = 0.687358$, $F(9,71) = 17.34$ [0.000] **; $RSS = 4.05287603$				
Normality test $\chi^2(2) = 7.2264$ [0.0270]*				
Hetero test : $F(18,52) = 2.5122$ [0.0050]**				
Hetero-X test : $F(54,16) = 2.8508$ [0.0120]*				
RESET test: $F(1,70) = 1.3856$ [0.2431]; $DW = 1.53$				

Table 6.9 Model has been run by taking the standardized values of the independent variables (81 observations)

the unemployment rate in the current study, theoretically speaking, they should all have negative signs implying high levels of these variables should result in having lower estimated unemployment relatives. Only local integration of small firms

(MLOCN) and institutional support and institutional thickness (PROT) are significant in the model. This means that those provinces with higher levels of local integration and institutional support have lower estimated unemployment relatives. Moreover, the model shows that there is heteroscedasticity (check hetero tests and see 6.3.2 for more information about heteroscedasticity). Therefore, estimators are inefficient. They do not have the smallest variance and standard errors and there are more precise estimators available. As has been discussed in Section 6.3.2, to overcome heteroscedasticity problem, the next step is to take logs of the independent variables.

From the unemployment relatives for 2004 and 2008, in the general model specification, the set of explanatory variables accounts for almost 75% of the variability (see R^2 value) in employment relatives between provinces in this period (Table 6.10). That means the regression model appears to function reasonably well, as the independent variables *explain* almost 75% of the variance of the dependent variable. The R-squared for the regression, which by construction is always between 0 and 1 inclusive, indicates the degree of ‘fit’ of the regression. A value of 0 indicates that the regression is perfectly useless in explaining the dependent variable, and a value of 1 signifies a perfect fit between the dependent variable and the linear combination of the explanatory variables. The goal is to get a relatively high R-squared. The reason why the term relatively is used here is that it is difficult to state a fixed acceptable R-squared interval. The only example in the literature is in understanding the performance of manufacturing sectors in which values above 0.7 or 0.8 are viewed as acceptable levels (Li *et al.*, 1994; Averbek, 2008; Sierra, 2009).

Variable	Coefficient	Std. Error	t-statistics	Prob.
Constant	-3.36260	0.9688	-3.47	0,001
Unemployment	0,424709	0.05089	8.35	0,000
INFOACC	0.144461	0.04778	3.02	0,003
NODEG	-0.154897	0,08558	-1.81	0,075
HITECH	-0.130009	0.1001	-1.30	0,198
SPEC	-0.0632858	0.07110	-0.890	0,376
MLOCN	-0.297871	0.1016	-2.93	0.005
TOTPOP	-7.71797e-005	0.003576	-0.0216	0.983
MKTACC	-0.113354	0,04225	-2.68	0,009
PROT	-0.0265279	0.07110	-0.890	0,376
Test Statistics { Probabilities = * donates significance at the 5% level ** donates significance at the 1% level				
$R^2 = 0.749924$, $F(9,71) = 23.66$ [0.000] **; $RSS = 3.24181632$				
Normality test $\chi^2(2) = 3.9879$ [0.1362]				
Hetero test : $F(18,52) = 1.2445$ [0.2632]				
Hetero-X test : $F(54,16) = 0.56327$ [0.9402]				
RESET test: $F(1,70) = 0.59774$ [0.4420]; $DW = 1.78$				

Table 6.10 Model has been run by taking the log values of the independent variables
(81 observations)

The probability of the F-statistic is 0 which means that the model is very significant at the 1% level. Furthermore, the value of residual sum of squares (RSS), which is a

measure of the discrepancy between the data and an estimation model, is 3.24 in the model. A small sum squared residual indicates a tight fit of the model to the data.

Also other test statistics show high levels of significance of the current model. The normality test is used to determine whether a data set is well-modelled by a normal distribution. The null hypothesis is constructed as the residuals of the variables are normally distributed and because the value is not significant (less than 10%), the null hypothesis cannot be rejected. Therefore, the residuals are normally distributed. The heteroscedasticity tests show that there is no heteroscedasticity in the model. The RESET test of functional form shows that the linear formulation is satisfactory. So there is no misspecification in the functional form (see section 6.3.1 for the details). The DW (Durbin–Watson) statistic is a test statistic used to detect the presence of autocorrelation in the residuals from a regression analysis. The value of DW lies between 0 and 4 and the value of 2 indicates no autocorrelation. In the current model, although the value is close to 2, it is less than 2 that means there may be evidence of positive serial correlation amongst residuals. To check the presence of autocorrelation in the residuals, a further analysis is necessary. In statistics, the Breusch–Godfrey serial correlation LM test is a robust test for autocorrelation in the residuals from a regression analysis and is considered more general than the standard Durbin–Watson statistic. According to Table 6.11, Observed R^2 and $\chi^2(1)$ values are insignificant which means there is no serial autocorrelation in the model. In summary, test statistics show that there is no problem in terms of explaining the probabilities or coefficients of the variables in the model.

Variable	Coefficient	Std. Error	t-statistics	Prob.
Constant	0.090191	0.975092	0.092494	0.9266
Unemployment	-0.004976	0.051250	-0.097089	0.8875
INFOACC	-2.16e-05	0.047839	-0.000451	0.9996
NODEG	-0.022468	0.089178	-0.251949	0.8018
HITECH	0.009773	0.100803	0.096948	0.9230
SPEC	0.002535	0.071239	0.035586	0.9717
MLOCN	-0.014602	0.102953	-0.141829	0.8876
TOTPOP	0.000546	0.003630	0.150350	0.8809
MKTACC	-0.006080	0.042826	-0.141979	0.8875
PROT	-0.001693	0.016067	-0.105357	0.9164
RESID(-1)	0.120286	0.132382	0.908630	0.3667
Test Statistics { Probabilities = * donates significance at the 5% level ** donates significance at the 1% level				
Observed * $R^2 = 0.944210$, Probability $\chi^2(1) = 0.331197$				

Table 6.11 Breusch-Godfrey Serial Correlation LM Test result

Based upon the evidence from Turkey's local and regional economies between 2004 and 2008, knowledge creation and access to information (INFOACC), local human base (NODEG), local integration of small firms (MLOCN), extent and nature of local demand (MKTACC) and institutional support (PROT) variables are the main drivers of the local and regional economic development in Turkey. According to the test statistics:

- knowledge creation and access to information (INFOACC) restricts rather than enhances local job growth;
- human capital (NODEG) enhances local job growth;
- the spatial concentration of small firms (MLOCN) increases growth;
- market accessibility (MKTACC) promotes growth.

The rest of the variables are insignificant in the current model implying they have no correlation with local job growth in Turkey's regional economies. However, the current model includes the outlier values of the data which might affect the statistical results of the correlation. It is, therefore, important to investigate the effects of the outlier values on the model.

6.4.2 Geography and Outlier Values

To learn more about the pattern underlying the forecasting errors in the regression model, the econometric approach enables the researcher to identify the outliers in the dataset. Outlier detection is one of the major tasks of data analysis that aims to identify abnormal patterns (outliers) from large data sets. In different applications, outliers are labelled differently as anomalies, deviations, exceptions, faults, and irregularities (Chen *et al.*, 2008). Barnett's definition is widely accepted by statisticians and computer scientists, and views an outlier as one observation that

appears to deviate markedly from other members of the sample in which it occurs (Barnet and Lewis, 1994). In recent years, the existence of major amounts of spatial data has made the identification of spatial outliers a significant task required to identify anomalies in a spatial context (Willmott *et al.*, 2007; Adnan *et al.*, 2010; Chen *et al.*, 2010). By definition, a spatial outlier is a spatially referenced object whose non-spatial attribute values are significantly different from those of other spatially referenced objects in its spatial neighbourhood (Shekhar and Chawla, 2002).

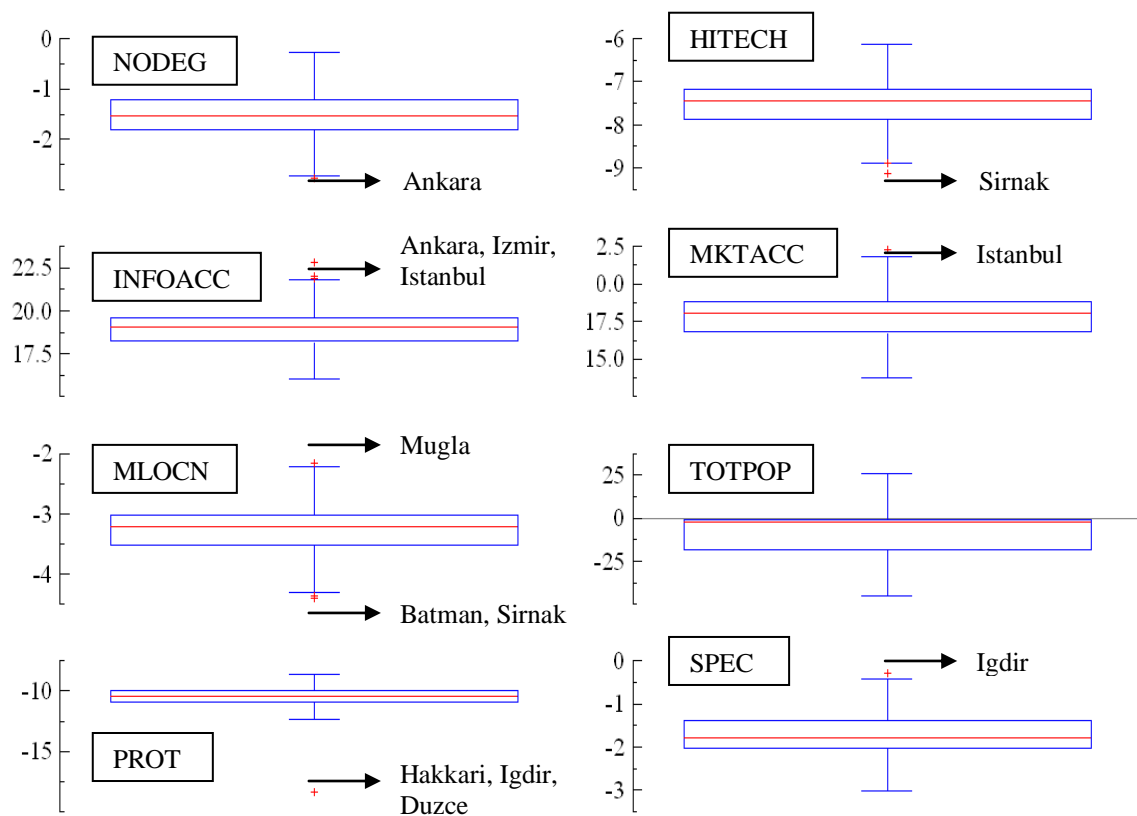


Figure 6.6 Distribution of the variables in log values, with outliers

It needs to be emphasized that the interpretation and significance of the parameter estimates and the overall model are only meaningful if the specification satisfies the

assumption underlying the OLS estimation. Figure 6.6 shows the distribution of the variables and identifies a small number of residuals that are potential outliers. For the local human base (NODEG) variable, Ankara remains as the negative outlier (below the distribution of the variables in log values). For the technological leadership (HITECH) variable, Sirnak remains as the negative outlier. For the knowledge creation and access to information (INFOACC) variable, Ankara, Istanbul and Izmir provinces are the positive outliers (above the distribution of the variables in log values). For the extent and nature of local demand (MKTACC) variable, Istanbul is the positive outlier. For the local integration of small firms (MLOCN) variable, while Mugla is the positive outlier, Batman and Sirnak provinces are the negative outliers. There are no outliers for the power of large corporations (TOTPOP) variable. For the institutional support (PROT) variable, Hakkari, Igdirdir and Duzce are the negative outliers. Finally, for the local sectoral specialization (SPEC) variable, Igdirdir is the negative outlier (see Figure 6.7 for their locations).

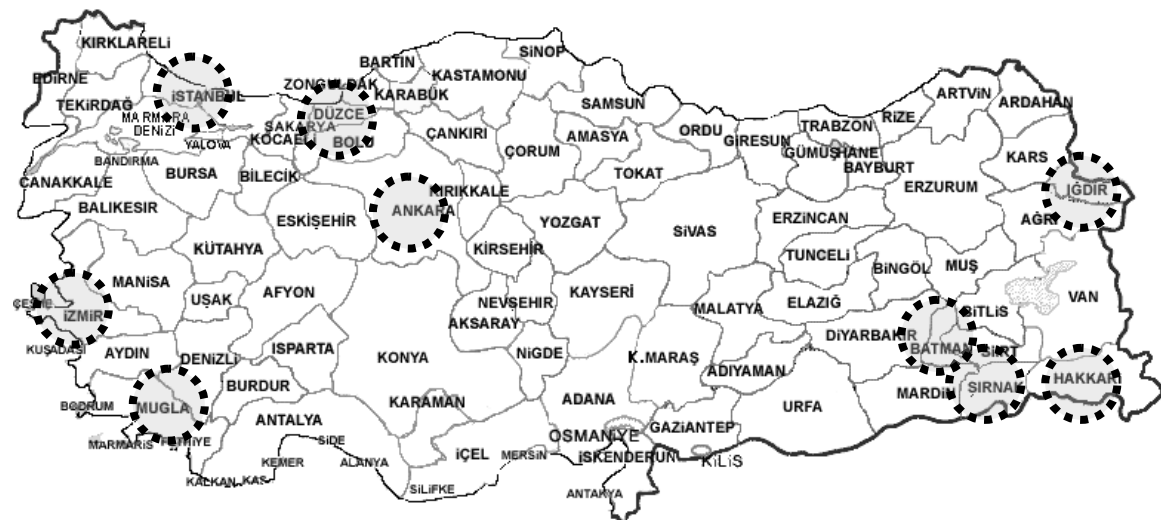


Figure 6.7: Outlier provinces

Although some of the outlier values are located in big metropolitan cities, some of them are excluded due to their economic performance. For example, big provinces such as Istanbul, Ankara, Izmir and Mugla are the outlier provinces in different variables because they remain above the upper quartile which means their values remain significantly higher than others. On the other hand, Duzce, Igdir, Batman, Sirnak and Hakkari provinces are under the lower quartile, their values being very low. The distinction amongst these provinces shows a West-East divide in Turkey in terms of explaining the economic performance of the provinces. However, although Duzce is located in the west part of Turkey, it is surprising to see that province under the lower quartile of the institutional support (PROT) variable. The reason why this province is considered as an outlier province is probably because it is located between Istanbul and Ankara provinces so that Duzce is affected by the hinterland of these two big metropolitan cities and it seems likely that it is from those interactions that Duzce receives institutional support.

To reduce the forecasting errors in the model, these outlier values need to be removed from the dataset. Although there is no clear theoretical justification for omitting these values, omitting outliers in the frequency distributions can enable release of a data set whose utility is not compromised by extensive aggregation of values (Howe *et al.*, 2006). In other words, it can affect the coefficient values of the variables or the error term in the model.

Variable	Coefficient	Std. Error	t-statistics	Prob.
Constant	-4.109198	0.96087	-4.28	0,0001
Unemployment	0,462563	0.05085	9.09	0,0000
INFOACC	0.203092	0.05091	3.99	0,0002
NODEG	-0.225999	0,08620	-2.62	0,0109
HITECH	-0.027723	0.09784	-0.28	0,7778
SPEC	0.003364	0.07392	0.05	0,9638
MLOCN	-0.326318	0.10289	-3.17	0.0023
TOTPOP	-0.001393	0.00336	-0.41	0.6799
MKTACC	-0.143215	0,04258	-3.36	0,0013
PROT	-0.109625	0.03727	-2.94	0,0046

Test Statistics { Probabilities = * donates significance at the 5% level

** donates significance at the 1% level

$R^2 = 0.781465$, $F(9,71) = 25.03$ [0.000] **; $RSS = 2.491220$

Normality test $\chi^2(2) = 3.6305$ [0.1628]

Hetero test : $F(18,54) = 1.30573$ [0.2216]

Hetero-X test : $F(54,18) = 0.94213$ [0.5866]

RESET test: $F(1,62) = 0.0008$ [0.9770]; $DW = 1.71$

Observed * $R^2 = 1.982879$, Probability $\chi^2(1) = 0.159087$

Table 6.12 The general model of regional economic growth in Turkey 2004 to 2008
(excluding outlier values)

Based upon the evidence from Turkey's local and regional economies between 2004 and 2008, when the outlier values are removed from the data, although the significance levels of the general model specification (excluding outliers) have been

similar to the previous model, omitting those observations does appear to impact positively upon the institutional support (PROT) variable (Table 6.12). In addition to the previous comments, the institutional support (PROT) variable enhances local job growth in Turkey. More controversially, the technological leadership (HITECH) variable which remains theoretically essential for local economic growth has no relation with local and regional economic development in Turkey. Moreover, ‘specialization provides an essential link between the technical and spatial conditions of economic progress’ (Lampard, 1955: 88). Specialization and division of labour are important principles which ‘mediate between technical advance and spatial form’ (Phelps and Ozawa, 2003). However, in this analysis of Turkey, the variable (SPEC) is insignificant as well.

Overall, the general model appears to fit the Turkish data reasonably well and it is statistically significant. Although the diagnostic test reveals some significant misspecification issues, using a general model to evaluate the alternative specification to the theoretical models of local growth is justified. However, in light of the results of fitting the general model with and without the outlying values, it is important to test the validity of the competing theoretical models against the general model specification. In order to do this, the first step is to define a hypothesis.

Competitive advantage; $H_0: \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_8 = \beta_9 = 0$

Learning regions; $H_0: \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_9 = 0$

Flexible specialization; $H_0: \beta_2 = \beta_4 = \beta_5 = \beta_6 = 0$

Product cycle; $H_0: \beta_2 = \beta_3 = \beta_6 = \beta_7 = \beta_8 = 0$

Growth pole;	$H_0: \beta_2 = \beta_3 = \beta_7 = 0$
Segmentation;	$H_0: \beta_2 = \beta_4 = \beta_7 = 0$
Creative Class;	$H_0: \beta_2 = \beta_3 = \beta_5 = \beta_6 = 0$

Each number in the null hypothesis denominates that the variable in that position is missing in the corresponding theory. For example, in the learning region mode, the second (MKTACC) and third (TOTPOP) variables are not included as explanatory variables (see Chapter 2: Methodology). Therefore, they should be denoted as ‘0’ in the hypothesis. However, since the null hypothesis is going to be tested in the model, it should state the exact opposite of the hypothesis. Therefore, rather than ‘MKTACC’ and ‘TOTPOP’; the rest of the variables are going to be tested in the Learning regions model to see whether the opposite of the thesis is true. The following table shows the results of each testing.

Theoretical model	Outliers removed	
	Full sample (probability)	(probability)
Competitive advantage	0,000	0,000
Learning region	0,000	0,000
Flexible specialization	0,000	0,000
Product cycle	0,000	0,000
Growth pole	0,000	0,009
Segmentation	0,000	0,002
Creative Class	0,000	0,000

Table 6.13 Testing linear restrictions in the general model

Testing the validity of linear restrictions in nested models involves testing the assumption that the restrictions imposed on the general model are correct (Table 6.13). In other words, the set of linear restrictions cannot be rejected at a given level of significance. Under the assumption that the null hypothesis is correct, for n observations and k estimated parameters in a linear regression model with a normally distributed error term, g linear restrictions can be jointly tested using an F-test with $F(g, n-k)$ degrees of freedom:

$$F(g, n-k) = \frac{(ro - r)(n - k)}{g \cdot r}$$

where ro is the residual sum of squares of the restricted model and r is the residual sum of squares in the unrestricted model (Maddala, 1988). According to the probability ratios of the theoretical models, for both the full and reduced sample cases, there is evidence to suggest that the assumption '*the set of linear restrictions imposed on the general model by all the models are correct*' can be rejected. This means that the null hypothesis constructed to test those models has to be rejected. In other words, none of these models can be applied in the Turkish context. However, in the general model, some variables remain crucial in explaining the dynamics of local and regional economy in Turkey.

6.5 Discussion and Conclusion

This chapter seeks to explore, in a preliminary way, the dynamics of local and regional economic growth among Turkey's provinces during the period 2004 to 2008. A theoretically informed empirical modelling strategy has been used which identifies economic drivers of growth from a range of institutionalist theories. Those theories including 'flexible specialization', 'clusters' and 'the creative class' are interpreted as involving different combinations of this suite of drivers. However, when these different combinations of drivers were compared with the general model containing them all, none was found to offer a significantly improved explanation. In short, none of the seven theoretical frameworks that form the foundation of this analysis offers a significant explanation of provincial level growth in the study period in Turkey. This is not a surprising outcome given the fact that the structural composition and the geographical profile of economic growth, the structure of demand, national and international systems of regulation and the specific geographical, social and institutional foundations of economic development are different in developing economies than developed economies. In that sense, the conclusion differs from that of earlier work on Australia by Plummer and Taylor (2001a, 2001b) and Garlick *et.al.*, (2007). In those analyses, one theoretical model, the learning region model, offered the best explanation of regionally differentiated growth, though even that model did not work entirely in the way it had been theorised.

The Turkish analyses reported here suggest that in this context none of the theoretical models that were calibrated in this study provided a significant explanation of

differential regional economic growth in that country. However, in the general model, the test statistics suggest that some drivers within the theoretical models do contribute to an explanation of local and regional economic growth in Turkey. However, this explanation is one that differs from the explanations offered by other theories. It suggests that implementing policies based on the processes postulated in only one particular model and theory would be inappropriate. Individually, none of the models explored here would be enough to explain the dynamics of Turkey's regional economies. However, the general model suggests that five important drivers shape the dynamics of Turkey's regions.

- The *local integration* of small firms in the country's regions appears to *enhance* local economic growth – a possible indication of an incipient enterprise culture in those places but on the local engagement of local firms and SMEs;
- *Institutional thickness*, including infrastructure support, also seems to *foster* local economic growth, possibly reflecting the success generated by local institutions and national policy efforts in building the local economic capacities of places;
- The *local human resource base* of Turkey's regions is a *driver* of local economic growth, demonstrating the importance of human capital in this country as in many others;

- Also *fostering* economic growth in Turkey is *accessibility to intermediate markets* – to markets in Turkey for products and manufactured goods rather than services of one sort or another. This is a result quite different to that of the Australian analysis, but a result that mirrors the significance of manufacturing in the Turkish economy and its major contribution to exports and to national economic growth; and
- Contrary to theory-based expectations, *knowledge creation and access to information* was shown in this analysis *to restrict* rather than to enhance economic growth across Turkey's provincial economies. This is a difficult finding, but a finding that is important and thought-provoking and needs careful interpretation and further analysis. It relates in some ways to the major concentration of the knowledge economy in Istanbul and Ankara but may also relate to the concentration of large and foreign owned firms in the Western provinces of the country. However, conjecture is no answer. What is needed is further, in-depth analysis.

As an overall assessment, the result of the current study is a veritable 'Curate's Egg – good in parts. None of the models explored in the analyses provide a full explanation of the dynamics of Turkish regional development, but elements of them all have resonance with regional economic growth in Turkey.

When these findings are drawn together they suggest, tentatively, a very distinctive form of production-based regional economic growth across Turkey's provincial

economies built on: (1) linked small firm manufacturing, (2) local human capital, (3) local institutional support, and (4) access to intermediate goods markets. It is an interpretation that is consistent with Turkey's manufacturing and production firms being subordinated within value chains dominated by large, and in many cases foreign-owned, corporations. But, as this analysis implies, this is not a situation easily addressed through current theoretical understandings of the processes shaping regional and provincial economic growth in countries at the same or similar stages of development as Turkey. More controversially, some theoretical drivers have no relation to the model. The local sectoral specialization and power of large corporations variables, for example, have no impact on local growth. Similarly, the technological leadership variable has also no correlation with the model as well. This is a particularly important finding in relation to the role of high tech industries in the local growth process. This is a finding that does not marry with the existing models of knowledge and learning based economic growth that is said to underpin developed market economies of Europe and the world. In summary, the current study is an explanatory analysis which has highlighted major issues that need to be discussed in the future.

From the analyses reported in this chapter two fundamental conclusions can be drawn. First, no current theory of differential regional economic growth drawn from a developed country context provides an adequate understanding of the processes shaping regional growth in a developing country context. Second, there is an urgent need to develop more nuanced and locally relevant models of regional dynamics in the developing country context. As globalization deepens and extends, developed and

developing economies become increasingly intertwined. Fuller and more locally relevant understanding of local and regional economies is, therefore, essential to the formulation of appropriate regional policies that are locally nuanced and locally relevant if places are to benefit from the potential that globalization has to offer. To get more insights about regional policy within Turkey, the next chapter aims to explore regional policy within Turkey and compare whether the analyses of this chapter match with the current regional policies in Turkey.

7 THE SOCIAL CONSTRUCTION OF REALITY IN THE TURKISH POLICY

7.1 Introduction

This chapter builds on the theoretically informed empirical modelling of Chapter 6 to deepen the analysis and the apparent limitations of the models on which it was built by placing the analysis in the context of Turkish regional policy. In the previous analysis, only some of the drivers of local and regional economic growth were identified as being positively related to the general model but not necessarily in the ways that the theories suggest. Moreover, statistically, none of the theories offers significant elements of explanation. That means that no theoretical approach provides a full explanation of economic reality in Turkey at the beginning of the 21st century. Existing theories appear to provide partial explanations. The aim of this chapter is to explore the characteristics of Turkish regional policy that have been formulated and incorporated in the Turkish context.

The model explored in Chapter 6 incorporated eight variables derived from theories of local and regional economic development. Knowledge creation and access to information, for example, suggests that a range of types of knowledge are being used and that knowledge underpins growth (Machlup, 1962; Drucker, 1969; Toffler, 1970; Castells, 1989; Reich, 1991; Starbuck, 1992; Moulaert and Sekia, 2003; Morgan, 2007). Theories of local economic growth would suggest that knowledge is positively related to growth (see Chapter 3) but this appears not to be the case in Turkey. This does not mean knowledge is not important in Turkey but it means that the types of

knowledge being used and accessed across Turkish provinces are not explained statistically for Turkey's differential growth. Similarly, human capital, encompassing issues of skills and education plays a prominent role in stimulating growth (Glaeser, 1994; Glaeser et al., 1995; Mody and Wang, 1997; Simon and Nardinelli, 1996, 1998; Plummer and Taylor, 2000; Brush et al., 2002). This measure which is based on the proportion of the population without degrees is also negatively related to growth as well. This result is not what the theory suggests (Glaeser, 1994; Glaeser et al., 1995; Mody and Wang, 1997; Simon and Nardinelli, 1996, 1998; Clark et al., 2000; Plummer and Taylor, 2001a). The variable for the local integration of small firms is considered to be, in almost all the approaches, essential for local economic growth and it is positively related in the model. In other words, the local integration of small firms which alludes to the role of trust, reciprocity and knowledge exchange at the regional scale is important in the Turkish context. The measure is based on the number of people employed in small businesses which have less than 50 employees. This measure highlights the predominance of small firms at the level of the regional economy. Market accessibility is an index defined in terms of the accessibility of a province to intermediate markets in Turkey and this measure is positively related to growth in Turkey. In other words, this variable shows the demand for a province to intermediate markets. This is identified through an interaction model in which size is measured as employment in manufacturing and construction and distance is measured as road distance. Institutional capacity and institutional thickness is a measure deployed to understand the local and regional capacity for collaboration and cooperation in Turkey and this variable is positively related to Turkish growth. The

variable is calculated by putting the emphasis on the institutions that promote and support industries such as public and Higher Education (HE) laboratories in Turkey.

Some variables suggested by the theories on drivers of local economic growth are not significant in the empirical model developed for Turkey. In some accounts of the endogenous growth literature and economics, local sectoral specialization is considered as an important driver of agglomerations (Gleaser, 2000). However, in the current model, this measure is unimportant. The power of large corporations in which large corporations are “the prime agency of production and reproduction” (Taylor, 2004, p. 61) has no impact on local growth. The technological leadership variable also has no correlation with the model. This is a particularly important finding in relation to the role of high tech industries in the local growth process. This is a finding that does not marry with the existing models of knowledge and learning based economic growth that are said to underpin developed market economies.

The analyses of the model highlight the differences of dynamics between developed countries and developing countries. This difference can be categorized under three mechanisms in Turkey. First is related to the geographical profile of Turkish economic growth. Studies point out that the geographical location of provinces in Turkey influences the level of income and education in the favour of the western regions (Celebioglu and Dall’erba, 2009; Gezici and Hewings, 2004). The insignificance of knowledge creation and access to information can be explained by the income and education differences between the eastern and western provinces of Turkey. Second is related to the structure of demand in Turkey. Turkey is an

infrastructural investment driven country and hence it is not surprising to find out that the institutional support variable remains significant. Also Turkey's being an export oriented economy reflects on the significance of market accessibility. The final mechanism is about national and international systems of regulations in Turkey. Even though Turkey's human resources have increased significantly over the last years, Turkey's commitments under the WTO's agreements following the Uruguay trade round, as well as under the EU customs union agreement, restricted the Turkish state's ability to provide direct support to high-tech exports (Onder, 2008). This explains why high tech industries and sectoral specialization are not significant for Turkey's differential economic growth. The aim of this chapter is to explore the characteristics of Turkish regional policy to identify those locally relevant influences. It explains how policy ideas have been formulated and incorporated in the Turkish context.

To this end, there are three main sections in this chapter. In the first section, policy practices in Turkey are reviewed through exploring policy documents. It is important to analyze whether the econometric model in the previous chapter can pick up some of the policy objectives within local economies. In the second section, the archives of a selection of the RDAs in Turkey are discussed in terms of the aims and objectives of the operations. This section brings the analysis down to the regional level, but also provides an opportunity to explore the relationship between the findings of the model and the analysis of policy documents which are supported by focus groups discussions with regional policy makers. In this section, it is important to understand the activities of the RDAs in terms of how their policies have been informed by drawing upon ideas embedded in theories of local economic development. Turkish documents are

examined and their context is confirmed through discussions with focus groups of policy makers, which also serves to develop an understanding of the current policy agenda in Turkey. Therefore, focus group discussions are important to explore how deeply policies based on theories derived from developed country research on local economic growth have influenced the activities of Turkish policy makers and to explore the relationship between the model, policy and the actual workings of the Turkish economy at a local level. In the final section, this chapter draws together the theories, policy documents and focus group inputs to reflect in the model developed in Chapter 6. It explores how these policy approaches match with the empirical modelling (see Chapter 6). Although they might not be linked to the dimensions that appear to be significant directly, there might be policies in place that have been directly or indirectly influenced by these theories. That means they may have an indirect unintentional impact on human capital, small firms or institutional support or there may be policies that indirectly promote or retard these drivers. Analyzing the existing Turkish policy framework informed by a series of focus groups helps the researcher to explore what the drivers are, in policy terms, that will work and facilitate economic development. Therefore, this chapter explores whether there is a mismatch between the econometric analysis and Turkish policy.

7.2 Policy Practices in Turkey

In 1963 the Turkish government decided to develop regional economic policy through the creation of five year development plans (FYDP) created by the State Planning

Organization⁸⁸ (SPO) which was established in 1963. Since 1963, there have been nine FYDPs (Table 7.1). The different plans highlight the evolution of regional economic policy thinking in Turkey. Table 7.1 summarizes and explains the aims, objectives, evidence of impact and the sources of regional thinking at the time of each of Turkey's nine FYDPs. Throughout the Plans, the policies have emphasized spatial dimensions and the endogenous characteristics of the regions. The Plans provide a useful account of the evolution of Turkish regional policy and also provide evidence regarding ideas that were imported into Turkey and that informed the development of regional policy. Government strategies are explored in this section to understand how theory has been imported and drawn into Turkish regional thinking. Five year plans and other policy documents have been analyzed to understand local policy thinking in terms of mechanisms and capacities to build local economic growth in Turkey, and the extent to which theories have been used to inform Turkish policy.

⁸⁸ Devlet Planlama Teskilati

Plans	Aims	Objectives	Evidence of Impact	Current sources of regional economic thinking
1 st Five Year Development Plan (1962-1967)	<ul style="list-style-type: none"> - Regional penetration of economic development - Regional economic integration 	<ul style="list-style-type: none"> - Balanced urbanization - Regional balance in terms of allocation of income and public services 	<ul style="list-style-type: none"> - ‘Growth poles’ 	<ul style="list-style-type: none"> - Large economic units (firms and industries) - Perroux, 1950
2 nd Five Year Development Plan (1967-1972)	<ul style="list-style-type: none"> - Focusing on population problems resulting from rapid urbanization 	<ul style="list-style-type: none"> - Balanced regional development - Investment activities 	<ul style="list-style-type: none"> - Regional (indirectly) and provincial planning 	<ul style="list-style-type: none"> - Large economic units, promotion of developed local infrastructure and service provision – Myrdal, 1957; Hirschman, 1958
3 rd Five Year Development Plan (1972-1977)	<ul style="list-style-type: none"> - Removing regional inequalities - Development of less developed regions 	<ul style="list-style-type: none"> - Balanced regional development - Investment activities 	<ul style="list-style-type: none"> - ‘Priority Development Areas’ 	<ul style="list-style-type: none"> - Sectors, location in space, institutional support, Hirschman, 1958; Lloyd and Dicken, 1972
4 th Five Year Development Plan (1979-1982)	<ul style="list-style-type: none"> - Mobilization of resources towards regional problems 	<ul style="list-style-type: none"> - Strengthening the relationship between sectors and regions 	<ul style="list-style-type: none"> - Sectoral and provincial dependency - Spatial organization, i.e. the GAP 	<ul style="list-style-type: none"> - Sectors, location in space - Lloyd and Dicken, 1972
5 th Five Year Development Plan (1985-1989)	<ul style="list-style-type: none"> - Accelerating development of less developed and potential (in terms of sectors) regions via rationalizing resource management 	<ul style="list-style-type: none"> - Balanced regional development considering social equality 	<ul style="list-style-type: none"> - Regional planning (16 functional regions) - ‘Staging of Settlement Centres’ 	<ul style="list-style-type: none"> - ‘Free market economy’, Market accessibility – Friedman, 1962; (also the movement after Thatcher and Reagan)
6 th Five Year Development Plan (1990-1994)	<ul style="list-style-type: none"> - Undertaking a holistic approach for regional development - Standardization of the statistical system according to international (especially EU) criteria 	<ul style="list-style-type: none"> - Balanced regional development - Supporting towns to prevent emigration from villages 	<ul style="list-style-type: none"> - Regional and sub-regional planning - ‘Priority Development Provinces’ - Industrial Zones 	<ul style="list-style-type: none"> - IMF, EU and the Customs Union criteria (as external expectations) –flexible production (Brusco, 1982; Piore and Sabel, 1984, 1989; Scott, 1988)
7 th Five Year Development Plan (1996-2000)	<ul style="list-style-type: none"> - Integration of sectoral and spatial activities - City planning - Removing regional inequalities - Increasing competitiveness 	<ul style="list-style-type: none"> - Problems of metropolitan regions (immigration/emigration and demographic change - Activities to develop housing policies 	<ul style="list-style-type: none"> - Regional and sub regional projects - Mobilization of regional capabilities - Sustainable development 	<ul style="list-style-type: none"> - Sectoral specialization, integration of SMEs, competitiveness, - Porter, 1990; Beccatini, 1991; Scott and Storper, 1992; Camagni, 1991

Plans	Aims	Objectives	Evidence of Impact	Current sources of regional economic thinking
8 th Five Year Development Plan (2001-2005)	<ul style="list-style-type: none"> - Participatory planning - Sustainability - Activating resource management - Harmonization of the EU regional policies 	<ul style="list-style-type: none"> - Local entrepreneurship and mobilization of the local resources - Regional differences 	<ul style="list-style-type: none"> - Strategic regional planning - Clustering - Provincial development plans 	<ul style="list-style-type: none"> - Integration of SMEs, technological leadership, human capital – Porter, 1990; Maillat, 1995,1996; Morgan, 1996; Maskell et al, 1998
9 th Five Year Development Plan (2007-2013)	<ul style="list-style-type: none"> - Spatial prioritization of public investment and service provision - Developing and increasing institutional capacity - Endogenous development 	<ul style="list-style-type: none"> - Increasing regional productivity - Enhancing national development, competitiveness and employment 	<ul style="list-style-type: none"> - ‘Attraction centres’ - Identification of leading sectors and supporting them 	<ul style="list-style-type: none"> - Clusters, learning regions, innovation systems, entrepreneurship, knowledge creation, human capital – Lundvall, 1992; Porter, 1998; Florida, 2002

Table 7.1: Summary table of Five Year Development Plans in Turkey (Adopted after the 9th Five Year Development Plan, 2006)

With the First FYDP (1963-1967), the regional penetration of economic development and regional economic integration was encouraged through balanced urbanization via the allocation of income and public services. The concept of ‘growth poles’ (Perroux, 1950) was highly influential and regional development was formulated in accordance with the impact of large economic units. The emphasis placed on growth poles was seen in the First FYDP *“through prioritizing and allocating resources, increasing the general productivity degree of growth points that could sustain highest economic and social productivity”* (DPT, 1963, p.471). These ‘tools’ [growth poles] could create industrial development and they could maintain balanced growth (DPT, 1963, p.474). Although it was not explicitly stated, this regional policy was affected by the

Perrouxian view which stated that investments should focus on a limited numbers of locations to encourage economic activity and thereby raise welfare levels within a region (see Perroux, 1955). In that respect, the First FYDP stated that locations needed to be developed and locations with advantages would be the starting points for regional development (DPT, 1963, p. 473).

The second FYDP (1968-1972) focused on population problems resulting from rapid urbanization (DPT, 1968). This was associated with an increase in the importance of provincial planning and *de facto* regional development through various investment activities. Following up the Perrouxian influence, the promotion of developed infrastructure and service provision became effective in the second FYDP in the sense that small initial changes amplified over time to become a substantial change (see Myrdal, 1957). Heavy industries were appointed to initiate those changes while supporting the modernization of agriculture sectors and SMEs (DPT, 1968, p.630).

“Since increasing industrial production will be based on the creation of new capacities, more than current technological development, investments on these sectors [heavy sectors] will be accelerated, [and] to achieve fast growth, modern technologies will be used in industrial facilities” (DPT, 1968, 630).

The importance of effective development policies and institutions (see Hirschman, 1958) started to become very relevant for economic development and hence a mixed economy of public and private enterprises was encouraged to balance economic development (DPT, 1968, p.627).

Rapid urbanization and development intensified regional inequalities and the development of less developed regions became a core objective of the third FYDP (1973-1977). 'Priority Development Areas' were defined to channel investments into underdeveloped regions (DPT, 1973, pp. 947-948) and the number of administrations increased from 22 to 49 to do this effectively (Dağ, 1995). 'Locational choice of firms' (see Lloyd and Dicken, 1972) started to be considered implicitly as a long term competitive device to solve the problems of polarization. To do this, the Plan proposed to use 'Sectoral and Sub-sectoral Plans' and 'Provincial Plans' in addition to 'Annual Programs' that the Plans proposed in the previous years (DPT, 1973, p. 974). A 'New Strategy' based on industrialization and sectoral planning was formulated around 'Sectoral and Sub-sectoral Plans' or master plans (DPT, 1973, p. 938).

The same strategy became more relevant in the fourth FYDP (1979-1983). The aim of the Plan was to mobilize resources towards regional problems through strengthening the relationships between sectors and regions (DPT, 1979). Machine production, metallurgy, electronic and chemical industries were prioritized (DPT, 1979, p. 658). Technological enhancement was supported by establishing research and development units amongst industries (ibid, p. 659). During this period, the Southeastern Development Project (GAP) was implemented as an example of spatial organization that supports sectoral and provincial relationships in the region (GAP, 2011). The Project was a multi-sector integrated regional development approach and it was to eliminate regional development disparities in the region by enhancing the productive and employment generating capacity of the region.

Before the 1980s, there was a broad consensus that economic development should be based on import substitution (DPT, 1963; 1968; 1973; 1979). By this was meant that domestic production of import-competing goods should be started and increased to satisfy the domestic market under incentives. However, the import substitution strategy was one of the primary causes of the low levels of foreign direct investment (FDI) in Turkey (Balasubramanyam, 1996). After the 1980s, there was a big shift in the regional planning approach in Turkey. The Turkish government initiated a series of reforms including minimizing state intervention and establishing a free market economy. This encouraged the role of foreign investors in Turkey. Annual FDI flows in Turkey which was only \$228 million in total until 1980 grew rapidly from the mid-1980s, reaching \$1 billion in 1990 (Erdal and Tatoglu, 2002). Transitional financial actors such as the International Monetary Fund (IMF) or supra-national regional entities such as the North American Free Trade Area (NAFTA) started to get involved in large scale privatization projects (Onis, 2011). The concept of a ‘free market economy’ was reflected in subsequent FYDPs. The Plans started to consider this concept as a main driver in regional policy and the Turkish globalization process (Senses, 1983; Ozturk and Aslanoglu, 1995; Arslan, 1997; Turel, 1997; Sezen, 1999; Tokgoz, 2001). The emphasis placed on this concept was seen in the Fourth FYDP which noted that

“Since the integration of the [Turkish] economy depends on strengthening the ties between industries and regions; and concentration of goods, services and human flow, it is aimed to include a spatial organization that performs a market arrangement [order] through the systems of settlement centres that are linked to

each other and that have social and economic division of labour” (DPT, 1979, p.292).

In the fifth FYDP (1985-1989), economic liberalism and ‘the power of the market’ (Friedman, 1962) started to emerge in regional economic thinking influenced by Reagan and Thatcher (Toprak, 1999; Ergul, 2000, p. 178). This influence was seen in the objectives of the fifth FYDP which aimed *“to promote the activities of private enterprisers, which are based on the competitive free market economy, in accordance with the aims and objectives of the national economy in a secure and dedicated manner”* (DPT, 1985, p. 188). This issue was then criticized by the Former Minister of the Economy, Kemal Dervis, as an important policy problem when he noted that:

“We need to rid conditionality and policy advice of ideology. A lot of policy advice in the past, especially in the 1980s, was driven by the influences of the Reagan/Thatcher conservative revolution where certain ideological buzzwords were more important than the actual substance of the policy” (Dervis, 2005, p.180).

Turgut Özal, the Turkish Prime Minister between 1983-1989, was an American trained bureaucrat and had very good relations with the IMF, the World Bank (between 1971-1973, he was adviser to the World Bank) and the US administration. Therefore, Turkish-American relations were vital for Özal’s domestic and external policies (Laciner, 2009). Also during the fifth FYDP (1985-1989), sixteen ‘functional regions’ were defined resulting from an investigation of ‘The Hierarchy of Urban

Settlement in Turkey' by the State Planning Organization in 1982. The regions were identified in terms of central place theory and the interaction of the centres (Gezici and Hewings, 2004).

With the increasing external influences of the IMF, and the possibility of EU accession and the Customs Union between Turkey and the EU, spatial dimensions of regional planning became more apparent in the sixth FYDP (1990-1994). This was seen as a mechanism intended

“to balance the settlement hierarchy; to decrease population density and industrial concentration oriented towards metropolitan areas; to control cross regional and interregional immigration/emigration; and to support sub-metropolitan provinces, middle sized centres, the central provinces of less developed regions and rural settlement units that have central potentials”
(DPT, 1990, p. 318)

Regional and sub-regional planning was practised and industrial zones emerged to increase the flexibility of production (see Brusco, 1982; Piore and Sabel, 1984, 1989; Scott, 1988). SMEs were included in the planning as *“by expanding their current technological and knowledge accumulation, SMEs are aiming to attain more productive and flexible production systems so that they can protect their sectoral importance”* (DPT, 1990, p. 220). However, unlike in theories of flexible specialization, no emphasis was given to the relationship among different firms, public bodies and labour.

The ‘*spatial dimension of the policies*’ were emphasized in the seventh FYDP (1996-2000) with a focus on industries (DPT, 1995, p.170). Sectoral specialization and integration of SMEs (see Beccatini, 1991; Scott and Storper, 1992; Camagni, 1991) were highlighted in the Plan. This was emphasized as: “*while shrinking local demand damaged some industries which cannot orient themselves towards exporting, it did not affect industries that have significant increases in their exporting production such as textile-clothing, paper, glass and iron-steel*” (DPT, 1995, p. 65). Therefore, different from in the previous Plans, industrial support was aimed at promoting activity based industries and the integration of SMEs rather than sectoral promotion (ibid, p. 68). Also competitiveness (see Porter, 1990) emerged as a new concept in the Plan. However, although the competitiveness concept was mentioned in many places in the Plan, there was no explicit definition of what it meant in the Turkish context and how it would be achieved. The only explicit emphasis of attaining competitiveness was based on developing software engineering so that it would be possible to compete with other industries (DPT, 1995, p. 15). This was a sector strategy rather than a Porterian cluster strategy.

The competitiveness idea was more influential during the eight FYDP (2001-2005) as the cluster concept emerged for the first time in a policy document as: “*the creation of regional clusters and communication networks shall be promoted*” (SME, 2004, p. 46). However, although the aim of promoting clusters was to support the establishment of business clusters and increase the capacity of cooperation, there was no Turkish definition of clusters. It was stated that those clusters were to be formed in Organized Industrial Zones (OIZs), Industrial Zones and Industrial Estates (SME,

2004, p. 73). Regional plans such as Zonguldak-Bartın-Karabük, DAP and DOKAP projects were formulated (DPT, 2001, pp. 64-67) to reduce the interregional disparities amongst regions. Also the possible accession of Turkey to the EU increased the importance of regional development in Turkey during this period. For example, the absence of regional statistical units was emphasized in the EU accession report in 2002 and “...preparing national development plans covering integrated regional plans especially for the Priority Provinces for Development at NUTS 2 level in the period of 2003-2005” was requested by the EU committee (EU, 2002). In this respect, ensuring that Turkish statistical databases were harmonized with the regional statistical systems of the EU, developing a socio-economic analysis of regions and the classification of new regional statistical units of Turkey were all completed by 2002 (Gezici and Hewings, 2004). By this time, Turkish regional policy could not be considered in isolation from a set of external agents (IMF, World Bank, EU).

As a first step, regional statistical units (NUTS) at Level 3 were constituted at the provincial level. The provinces that were neighbours to each other and had similar socio-economic and geographical features were classified at Level 2 and Level 1 (Gezici and Hewings, 2004). Following that, formation of regional development agencies that would apply regional development policies locally were anticipated in the 2003 Accession Partnership and Preliminary National Development Plans. Therefore, ‘local’ started to become more of a focus. With the increasing harmonization with EU regional policies, technology and human capital (see Maillat, 1995, 1996; Morgan, 1996; Maskell *et al.*, 1998) were also given more attention due to their increasing importance in local economies. Encouraging knowledge and

technology oriented sectors, supporting traditional industries, developing SMEs and expanding entrepreneurship were emphasized policies in the eighth FYDP (DPT, 2001, p. 76).

Finally, the ninth FYDP (2007-2013) aimed at sustaining economic growth and social development in a stable structure (DPT, 2007). In that respect, five development objectives were identified. They were increasing competitiveness; increasing employment; strengthening human development and social solidarity; ensuring regional development; and increasing quality and effectiveness in public services (DPT, 2007, p. 12). The Plan formed the basis for the necessary documents for the EU accession process including the Pre-Accession Economic Program and the Strategic Coherence Framework as well as other national and regional plans and programs, primarily the Medium Term Program and sectoral and institutional strategy documents. In the Plan, it was realized that information and communication technologies created radical changes in the ways of doing business and hence the production of knowledge intensive and high value-added goods and services and education level and attainment of required skills for the labour force were highlighted (DPT, 2007, p. 29). Although it was not directly stated, the general approach for enhancing national and regional development was not different to building innovation systems (see Lundvall, 1992) or the process of developing the knowledge economy (see Florida, 2002). In fact, there was an attempt to establish national innovation systems by increasing collaboration amongst institutions (DPT, 2001, p. 88). The emphasis placed on this concept was seen in the ninth FYDP which engaged “...productive and creative individuals who are of the information age with advanced

thinking...[and] who are familiar with scientific and technological usage and production, appreciation for the arts and [who] are highly skilled” (DPT, 2001, p. 100). Special training programs to develop entrepreneurship were encouraged as collaboration began between public institutions and organizations, the private sector, universities and NGOs. This approach was based on local dynamics and internal potential (ibid, p. 106 and p. 122).

Table 7.1 summarizes Turkey’s Five Year Development Plans in terms of the aims, objectives, evidence of impact and influences in terms of regional economic theory and practice. The transformation of the Plans shows how, through one way or another, policy ideas have been brought into or appeared in Turkey to shape regional policy. It emphasizes that this sort of acquisition of thinking has been translated into policy frameworks. In other words, Turkey has been taking on policies that have been devised using ideas from outside Turkey on how regional economies function in developed countries. Especially after the fourth FYDP, the Plans have tried to emulate and absorb regional economic thinking that has become significant internationally (see Mihci, 2001) rather than being targeted at local processes within Turkey and the EU accession process which intensified this trend.

Keywords identified from the analysis of local economic development theories	Keywords used in the policy documents	Documents/ dates
<ul style="list-style-type: none"> • Large firms • Local integration of firms • Market accessibility • Technological change and new technology • Sectoral specialization • Knowledge creation and access to information • Clusters • Local demand • Institutional support 	<ul style="list-style-type: none"> • ‘Growth poles’ • Investment incentives • Sectoral dependency • Mobilization of resources • Identification of leading sectors • Integration of sectoral and spatial activities • Innovation • Clustering • Endogenous development • Institutional capacity 	<p>(DPT, 1963; 1968; 2000a)</p> <p>(DPT, 1979; 1996)</p> <p>(DPT, 1985)</p> <p>(DPT, 1996; 2007)</p> <p>(DPT, 1985; 2007)</p> <p>(DPT, 1995; 2000; 2007)</p> <p>(SME, 2004; DPT, 2006)</p> <p>(DPT, 2000; 2007)</p> <p>(DPT, 2007)</p>

Table 7.2 Comparison table of theories and the policy documents

To link the policy documents explored in this section, it is important to connect the keywords used in those documents with concepts developed in theories of local economic development (Chapter 3) as well as the proxy variables of the econometric model (Chapter 5). This relationship can be explained explicitly and implicitly and this is attempted in Table 7.2. Explicit relations are the ones where the policy documents have direct links with the local economic development theories and the model. Implicit relations are the ones where the policy documents mention or state the links without providing many details.

To illustrate, the concept of large firms can be explained both explicitly and implicitly. At the heart of this concept, Perroux believed that ‘development poles’ had various influencing effects on economic and social structures (Perroux, 1983, p.26). He explained success as the increase in the size of a unit (usually a country) and that increase was explained in terms of its gross national product (see Chapter 3). According to him, “*the profit of a firm is a function of its output, of its inputs, and of the output and input of another firm*” (Perroux, 1955, p.96). In Turkey’s first FYDP, increasing gross national product was a goal to be achieved by establishing a mixed economy, i.e. a combination of public and private enterprises. Private enterprises were used as the main forces to facilitate balanced urbanization across the country and, according to the first FYDP “*...in parallel to the increase in gross national product, encouraging investment incentives on private enterprises with respect to a fast and balanced development*” (DPT, 1963, p.525).

In the second FYDP, the importance of large firms became more significant. The Plan not only emphasized “*making strategic investments of large capital*”, but also “*encourage[d] small industries to work towards supporting big industries*” (DPT, 1968, pp. 536-537). Although both Plans presumed the Perrouxian types of development, they argued that such concentrations (i.e. growth poles) should be located in terms of the allocation of income and public services. This approach was explicitly mentioned in the eighth FYDP where “*the investments that are oriented towards the created growth poles [büyüme kutupları] encourage the population to work and live in those areas [growth poles] so that the private enterprises can be attracted to those regions*” (DPT, 2000a, p. 79). So it is important to note that

although the Perrouxian influence began as implicit at the beginning, it became explicit over time.

The emphasis on the local integration of firms captures the importance for growth of closely linked small producers and service providers, cooperation based on trust and reciprocity, and the importance of competition based on quality as well as price (Glaeser, 2001). With the help of central place theory, these concepts could be applied to location in space, while incorporating the role of distance or transportation costs (Lloyd and Dicken, 1972). In Turkey, the importance of the concept of location-space and distance emerged in the fourth FYDP (1979-1983) through the strengthening of the relationship between sectors and regions. One of the main priorities of the Plan was to minimize the external dependency of industries and enhance the sectoral dependency of regions (DPT, 1979). Although there was no explicit explanation of how to achieve this priority in the Plan, there were some attempts to minimize the distance and transport costs of industries by providing and improving infrastructure; railway, sea transportation and pipelines (DPT, 1996, p. 416).

Market accessibility is crucial for understanding the determinants of interregional commodity flow. When economic liberalization and ‘the role of capitalism’ emerged in regional economic thinking with the fifth FYDP (1985-1989), economic intervention and regulation by the Turkish government started to be limited to tax collection while private ownership and contracts were enforced (DPT, 1985, p.188). To increase the mobilization of resources in regional planning, employment policies

were encouraged as a part of sectoral policies and the industrialization process (DPT, 1985, p.131). Therefore, mobilization and the use of resources were seen as indirect ways to assess the effects of capitalism on the Turkish economy.

Technology is important in terms of understanding the dynamics of firms in an economy. This term is especially associated with high tech products in Turkey to refer to enterprises and industries that produce technologically advanced products. In theory, the term high tech is used:

“... broadly and interchangeably to refer to firms and industries whose products and services embody new, innovative and advanced technologies developed by the application of scientific and technological enterprise...” (Keeble and Wilkinson, 1999. p. 3)

In the Turkish policy documents, the term technology emerged after the Organized Industrial Zones (OIZs) Law came into force (see Chapter 4). Governments encouraged technology oriented projects in Turkey by providing various incentives including redemption of expenditures of R&D and provision of income tax withholding dividends (see Chapter 4, Table 4.5). The concept then evolved into the identification of leading sectors in the ninth FYDP and was used as a policy to

“...identify and support leading sectors in regions that are innovative, competitive, dynamic and that have high value added” (DPT, 2007, p. 92).

In theories of specialization, there is a link between the sectoral and spatial aspects of activities. *“Specialization provides an essential link between the technical and spatial conditions of economic progress”* (Lampard, 1955, p.88). Particular sectors and forms of innovation become important parts of societies and hence they are visible in the manner in which specialization and the division of labour assume a spatial expression (Phelps and Ozawa, 2003). After the introduction of ‘Specialized Industrial Zones’ with the fifth FYDP, specialization has been used proactively in national development plans (see Chapter 5). The emphasis on this concept was identified in the fifth FYDP (1985-1989). The Plan suggested:

“the identification of industrial sectors in Organized Industrial Zones according to regions’ characteristics and potentials, and when it is necessary, provision of specialized Organized Industrial Zones” (DPT, 1985, p.163).

The concept was integrated with the idea of competitiveness in the ninth FYDP and ‘clusters’ were used to support industries such as those *“featuring production of high value added chemicals in chemical industry and construction of specialized industrial zones”* (DPT, 2007, p.80).

The cluster concept is probably the most dominant policy idea amongst all other policy concepts in Turkey. The four determinants (i.e. factor conditions, demand conditions, related and supporting industries and firm strategy) form an interlinked and dynamic complex where each element is affected by the other three (see Chapter 3). In the Porterian view (Porter, 2000), clusters can be confined to a region or appear

on a national level. In Turkey, the cluster concept was mentioned in the SMEs Strategy and Action Plan in 2004 as “...*the creation of local and regional clusters*” (SME, 2004, p.46). However, although the policy document stated the need for clusters, it did not define how this approach should be undertaken. The main reason was that the method adopted by Porter (1990) required a specific database to identify clusters. Unfortunately, Turkey formed the classification of the NUTS regions (see Chapter 4) after ‘the Accession Partnership Documents’ were accepted by the European Commission in 2006. Therefore, it was difficult for Turkey to define industries concisely in the Porterian view. After the construction of a necessary database of regions, the cluster concept was mentioned more clearly in policy documents by linking it to its surrounding environment. The ninth FYDP (2007-2013) emphasized the necessity for “*meeting the physical infrastructure requirements of businesses as well as supporting their networking and clustering attempts*” (DPT, 2006, p. 81). Therefore, in the ninth FYDP, the concept of clusters was discussed more in terms of the Porterian approach as it emphasized the importance of surrounding conditions of industries: “...*encouraging mechanisms towards supporting local clusters, increasing the collaborations amongst the actors in clusters and featuring integration of clusters with the world markets*” (DPT, 2006, p. 93).

Local demand has been one of the neglected concepts in Turkey. Although it is at the heart of local economic development theories, it only started to be emphasized after the eight FYDP. In theory, a significant number of papers explore the relationship between local demand and economic growth (see Chapter 5). Local demand is associated with the local human base which reflects issues of skills, education,

participation and low-wage locations (Plummer and Taylor, 2000). In the eight FYDP, the importance of local demand was stated for the first time in regional plans.

“Regional plans will be established to initiate the relations amongst sectors by reflecting national priorities and local demand, they [regional plans] will develop the strategic vision for regions and have dynamic structuring” (DPT, 2000, p.67).

With the emergence of the cluster concept, local demand was associated with facilitating development based on local dynamics and endogenous development. In that respect: 1) workforce education programs, 2) collaboration amongst public, private sectors, universities and NGOs, 3) establishment of ‘sectoral industrial zones’ based on university-industry collaboration and ‘local specialization’, 4) publicity of historical and natural characteristics of regions, 5) differentiated SME strategies, 6) promotion of leading sectors, and 7) promotion of technopolis in potential centres were encouraged (DPT, 2007, pp. 92-93).

Theories of institutional capacity (see Amin and Thrift, 1994, 1995; Henry and Pinch, 2001; Keeble et al. 1999; Raco, 1998; Sydow and Staber, 2002) state that the ability of a locality to ensure economic growth depends not only on economic factors but also on the local presence of institutional thickness consisting of social and cultural factors. The theory is based on the strong presence of institutions, a high level of interaction between institutions and power relations amongst stakeholders. Although developing “institutional capacity” had been implicitly mentioned in Turkish policy

documents, it was the ninth FYDP (DPT, 2007-2013) that used this concept explicitly for the first time (DPT, 2007, p.93). To increase institutional capacity at the local level, the Plan aimed to:

- 1) support collaborations amongst public institutions, private sectors and NGOs, and thereby encourage information exchange through business networks;
- 2) support local institutions to have enough qualified technical personnel and infrastructure; increase project preparation, implementation, monitoring and evaluating capacities of institutions and actors that are important in development; provide resource management efficiency; and
- 3) consider localism as the basis for regional and local development; increase participation and awareness amongst shareholders (DPT, 2007, p.93).

The last keyword that can be identified as coming from local economic development theories is ‘knowledge creation and access to information’. Information and knowledge provide opportunities for knowledge creation. In theories of the knowledge economy, knowledge industries have been seen as the main drivers of advanced economies and are of national significance (Starbuck, 1992; Smith *et al.*, 2005; Renzl, 2008). The importance of knowledge and innovative industries has been emphasized recently in Turkish policy documents. It was stated in the seventh FYDP that *“if innovative industries cannot be developed, international competitiveness cannot be obtained”* (DPT, 1996, p. 72). Therefore, the aim of improving innovative

technologies was in connection with educating human capital (ibid, p. 74 and p. 76). To improve science and technological capabilities, the development of national innovation systems was highlighted in the eighth FYDP (DPT, 2000, p. 126). This was followed by the establishment of the Telecommunication Institute in 2000. After 2004, in line with EU regulations, the Telecommunication Institute was able to provide high quality services such as long distance communications and high quality internet broadband connections (DPT. 2007, p. 30). With the start of the e-Transformation Turkey Project in 2002, policy making and coordination in e-government issues started to become more integrated (see Chapter 5). The State Planning Institute was identified as a responsible institution and the Project was aimed at fostering the evolution and coordination of information between institutions, which were previously carried out in a decentralized and uncoordinated manner. These attempts enabled individuals and industries to have better access to information and they encouraged the establishment of university based knowledge industries.

To sum up, these implicit and explicit connections between the theories of local economic development and the policy documents show that the econometric model identified some of the issues of regional economic policy in Turkey.

7.2.1 RDAs in Turkey

This section brings the analysis down to the regional level, but also provides an opportunity to explore the relationship between the findings of the model and the focus group. It enables the researcher to look forwards because the RDA analysis

discusses actions that are currently being put in place. This is the section in which the analysis becomes grounded in place to explore the connection between the model and Turkey's economy on the ground. It is crucial for the researcher to understand how policy makers approach, prioritize and recognize current policy practices. Although those practices might not be linked to the drivers of local economic development which appear significant such as knowledge creation and access to information, the local human capital, local integration of small firms, extent and nature of local demand and institutional support variables, there might be policies in place that contain within them strategies that facilitate many of the measures included in the model. In the current study, focus group discussions do not simply mirror reality as they were not recorded, but rather, they constitute policy agendas, objects of knowledge, and the social identities of and relationships between the regions and the localities.

To understand the ideas that are apparently shaping the current policy agenda of the RDAs in Turkey, the current study explored policy documents and included focus group discussions with the RDA in Turkey. Focus groups are selected according to the initial results of the quantitative analysis. The selection process is defined with the help of ArcGIS software program. Focus groups are aimed to represent both the developed and less developed regions and provinces of Turkey so that they would provide insights into Turkey's differential local and regional growth. For example, each of the eight variables of the modelling framework has numeric values. Provinces and regions that score high and low on those variables are targeted in the selection process. Out of ten established RDAs, four RDAs accepted to be the focus groups.

They were informed about the aims and objectives of the research in advance. They were given a set of questions in a questionnaire that are going to be discussed during the discussion. Focus groups were undertaken at the headquarters of the RDAs. In total, twenty participants were attended in the discussions. The researcher acted as a facilitator in the process. He explained what the project was aiming for and asked the group if they understood the project. Since a recording device was attempted to be used during the discussion process, the participants were asked if they agreed to being recorded. Unfortunately, they refused to be recorded for confidentiality and political reasons. Therefore, the researcher here is only able to report the tenor of the discussion without providing transcripts and not the details that would come through quotes. Some illustrations such as maps and figures were distributed during the session and participants were encouraged to get involved by referring to the drawings and maps.

To try to establish a structure of national governance appropriate at the regional level, regional development agencies (RDAs) were created in Turkey after 2006 by the State Planning Institute to implement employment creation programs across the country. The RDAs were established to ensure that national growth plans reflected the needs and aspirations of local organizations – political, administrative, social or economic organizations. They also drew on the experience of other countries and the EU. To date, ten RDAs have been established (Figure 7.1).

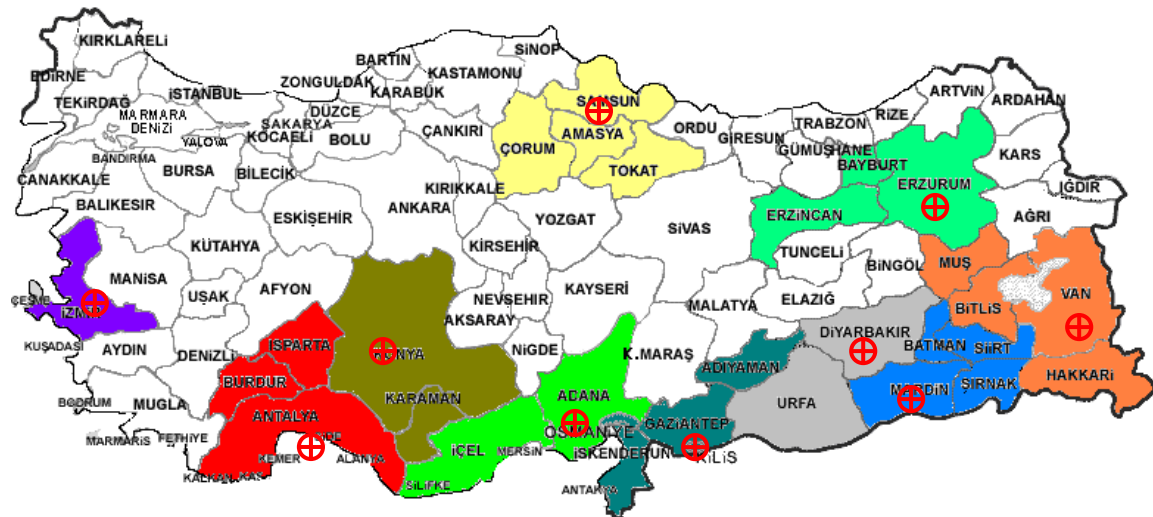


Figure 7.1 RDAs that have been set up in Turkey (different colours represent the RDAs and the symbols represent the headquarters of the established RDAs by 2009)

In this section, four RDAs in Turkey are examined by exploring their aims and objectives. The RDAs were identified according to the initial results of the quantitative analysis of the eight drivers (see Chapter 5). Also by the time the RDAs were established, some of them did not have any projects nor did they have enough personnel (they did not have planning experts or the experts were in training) to talk to. Therefore, the selection process was based on the availability of RDA personal. Selected provinces are the headquarters of these RDAs. The provinces were Adana, Konya, Samsun and Van (see Figure 7.2). In addition to these four RDAs, another focus group discussion was conducted with the planning experts in the State Planning Institute (SPO) in Ankara. These experts not only prepare development plans for the government but also they audit and monitor all the development plans produced by the RDAs. Therefore, they provide an overall view about the structure and potential of the regions in Turkey.

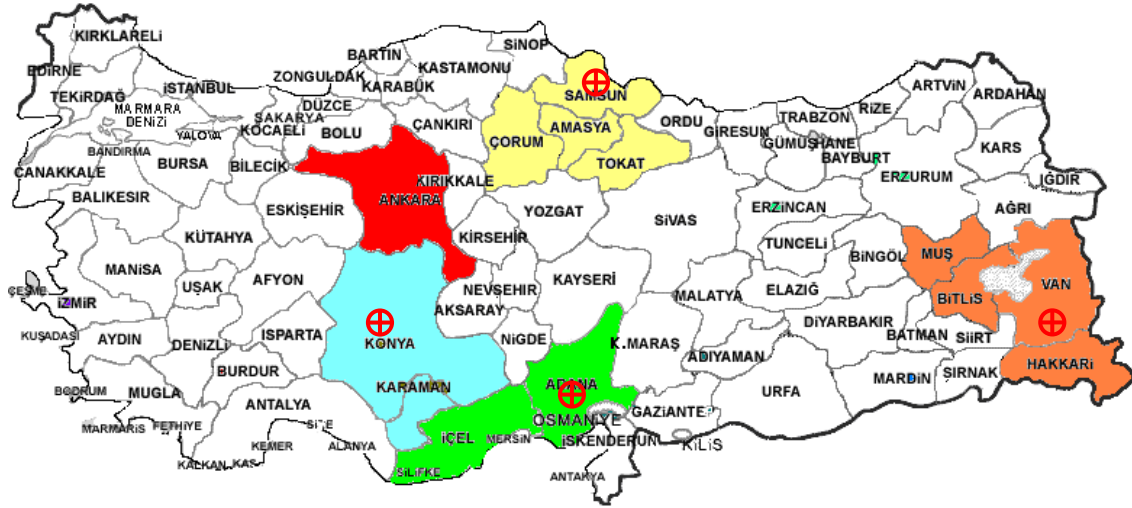


Figure 7.2: The provinces that are the headquarters of the selected RDAs

The headquarters of the Middle Black Sea Regional Development Agency (OKA) is located in Samsun. Samsun, Amasya, Çorum, and Tokat are represented in the OKA. The headquarters of the Mevlana Development Agency (MEVKA) is located in Konya. Konya and Karaman provinces are represented in the MEVKA. The headquarters of the Çukurova Development Agency (CKA) is located in Adana. Adana and Mersin are represented in the CKA. Finally, the headquarters of the Eastern Anatolia Development Agency (DAKA) is located in Van. Van, Bitlis, Hakkari and Muş are included in the DAKA. It is crucial to note that there is a strong relationship between the RDAs and national strategies, i.e. Five Year Development Plans. The RDA funding comes from central government and a set of activities that are supported by the RDAs are signed off or approved by the national government. The following sections explore each of the RDAs in terms of how their policies have been informed by drawing upon some of the ideas that are embedded in theories of local economic development. Policy documents are explored and the analysis is

informed by focus groups of policy makers to develop an understanding of the current policy agenda in Turkey.

7.2.1.1 Çukurova Development Agency (CKA)

Established in June 2006, the Çukurova Development Agency was one of the first two regional development agencies in Turkey. The main purpose of the Agency is to foster regional development in the Çukurova Region. The preparation of regional strategies and plans, the implementation of project based grant schemes, supporting local investors and promoting the region for foreign investment are the main methods that the Agency included in the plans (CKA, 2006). However, since the funding comes from the central government, the preparation of regional strategies and plans are informed by national strategy policy documents including the Five Year Plans and Government Programs.

The region has the highest GDP per head value (\$2293) amongst the regions and the unemployment rate is 11%. The CKA identifies its main principles (see Table 7.3) based on their vision which is “...*the heart of the East Mediterranean... Competitive in agriculture, industry, tourism, logistics and energy... Gateway to abroad with its port and free trade zone...*” (CKA-interview).

Characteristics of the region
Population: 3.5 million
Area: 29.7 km ²
GDP per head (\$): 2.293
Unemployment 11%
Some of the key concepts in the policy agenda of the region
<ul style="list-style-type: none"> * Managing human potential and immigration/emigration in the region, and * Supporting activities that facilitate production and employment in the region. <p style="text-align: right;">(CKA, 2008)</p>

Table 7.3 The characteristics and the policy agenda of the CKA

The first principle of their agenda is to manage human potential and immigration/emigration in the region. Policies have been established to: (1) create a database to help understand the supply and demand conditions of the market; (2) support the educational projects organized by SMEs, local administrations and NGOs; and (3) facilitate educational institutions aiming at building science, art and sports related facilities.

The second principle is to support activities that facilitate production and employment in the region. In that sense, the aim is to: (1) encourage new businesses to help increase production and employment in the region; (2) support projects that increase competitiveness amongst businesses; (3) support enterprisers' projects on administration, production, advertisement, marketing, technology, finance and

organization; and (4) ensure industries increase their efficiency, capacity, R&D and high added value production.

The policy agenda highlights some of the key words that were previously mentioned in the modelling exercise. While the first principle refers to facilitating educational institutions (human capital) and supporting the educational projects organized by SMEs, local administrations and NGOs (local integration), the second principle refers to increasing infrastructure of the local administrations (institutional support), and understanding the supply and demand conditions of the market (market accessibility).

The policy agenda emphasizes the endogenous development potential in the region by highlighting internal dynamics. This was highlighted in the focus group discussion as:

“The CKA with the role of enhancing local development and activating endogenous potential aims to reduce the threats of globalisation while determining local development strategies. The projects and actions prepared by the local actors in accordance with the Regional Development Strategy will be supported with grants, instead of credits, that are provided by both national resources and European Union funds. Thus, the endogenous potential of the region will be activated” (CKA-interview).

This quotation shows that the Agency aims to activate the endogenous potential in the region by encouraging the participation of local actors. However, what is also mentioned is that the Regional Development Strategy of the Agency which is

formulated according to the Five Year Plans is influenced strongly by both national resources, i.e. the central government, and the European Union. This is an important fact in that even though the Agency encourages participation in the planning processes, the guidelines of the projects are already defined according to external influences that are beyond the agency's control.

RDA	Provinces	Score								Total
		Variables*								
		T	I	M	P	D	C	A	S	
CKA	Adana	4	3	2	4	5	2	2	5	27
	Mersin	3	3	2	3	5	1	2	5	24

Table 7.4 The value distribution of the variables in the CKA region

*Note: T= Technological leadership; I= Knowledge creation and access to information; M= Local integration; P= institutional support; D= Human capital; C= Power of large corporations; A= Market accessibility; S= Sectoral specialization.

The mapping exercise in Chapter 5 also shows that the provinces in this region score highly on the variables employed in the econometric model. The mapping exercise is summarized for the CKA region in Table 7.6. Each variable in Table 7.6 consists of 5 classes based on natural groupings inherent in the dataset⁸⁹ (see Chapter 5).

⁸⁹ ArcGIS identifies break points by picking the class breaks that best group similar values and maximise the differences between classes. The features are divided into classes whose boundaries are set where there are relatively big jumps in the data values. On these scales, '1' is the lowest value and '5' is the highest value.

According to the value distribution in the region, the local human base (D) and the sectoral specialization (S) variables score the highest values amongst other variables in both provinces. This confirms that the current policies aiming to foster endogenous development in the region pick up these two variables directly in the region. Following these two variables, the technological leadership (T) and the institutional support (P) variables are the other strong indicators in the modelling exercise which are also highlighted in the policy agenda of the Agency.

“The CKA, supporting the regional strategy, will have the mission of supporting and improving entrepreneurship, rural and local development and cooperation between the public and private bodies and NGO’s” (CKA-interview).

Empirical analysis also suggests that the region does not perform well in terms of the market accessibility driver. This is an interesting result because the region has locational advantages based on road, railway and sea connections. Public-private partnerships were emphasized during the focus group discussion as an important element to develop the necessary infrastructure:

“...given the Government’s budgetary constraints, there is a need to mobilize private sector participation through public-private partnerships in the development of accessibility infrastructures...” (CKA-interview).

The importance of developing accessibility infrastructure has also been raised in the ninth FYDP by addressing the weaknesses associated with transportation (DPT, 2007). Therefore, the Agency aims to move towards shifting freight transportation to the railways to induce competition between the highway and railway models, and simultaneously transform maritime ports into world-class logistic centres.

Although not explicitly stated, the policy strategies of the Agency have been influenced by the competitive advantage model:

“Competitiveness is accepted as the way in which some sectors should be supported in the region. The Agency has sought to identify the most important primary sectors in the region” (CKA-interview).

However, the competitive advantage model relies on national level statistical data (see Chapter 3) and the concepts in the competitive advantage model such as clusters can be confined to a region or appear on a national level (Porter, 2000). This forces policymakers to depend on using other statistical measures at the local level which can limit their analysis. In that sense, rather than undertaking a Porterian approach in the region, formulating policies based on potential characteristics such as human capital and specialization might be more appropriate in the region.

7.2.1.2 Mevlana Development Agency (MEVKA)

Established in 2008, MEVKA's responsibilities include: (1) the provision of technical support for the planning practices of local administrations; (2) contributing to the improvement in the capacity of the region's rural and local development; (3) improving cooperation between the public sector, private sector and NGOs; (4) ensuring effective and efficient utilization of resources; (5) promoting business and investment facilities of the region; (5) supporting SMEs and new entrepreneurs in cooperation with other related institutions (MEVKA, 2009).

Similar to the previous region, the MEVKA region has the same GDP per head (\$2293) and unemployment rate (11%). However, the policies are different. The main activities of the MEVKA are formulated around a vision of the development of “...*a leading region that utilizes its resources efficiently and in an environmentally friendly manner. Strong with its socio-cultural characteristics, competitive...*” (MEVKA-interview). This vision statement highlights that endogenous development is prioritized and that resources should be used efficiently. Strategies have been developed to try to achieve this vision (Table 7.5). Some of the key concepts in the policy agenda include increasing the competitiveness of the region and developing human resources and increasing employment (MEVKA, 2009).

Characteristics of the region
Population: 2.2 million
Area: 29.7 km ²
GDP per head (\$): 2.293
Unemployment 11%
Some of the key concepts in the policy agenda of the region
* Increasing the competitiveness of the region, and
* Developing human resources and increasing employment.
(MEVKA, 2010)

Table 7.5 The characteristics and the policy agenda of the MEVKA

The first principle is increasing the competitiveness of the region and this includes: (1) strengthening the marketing infrastructure; (2) facilitating cooperation and collaboration in the region; (3) increasing the perception of innovation and R&D; and (4) increasing the industrial capacity and usage in the region. These characteristics refer to some of the key concepts used in the modelling exercise such as *market accessibility, local integration, technological leadership and sectoral specialization*. The second principle is about developing human resources and increasing employment. The policy agenda covers: (1) increasing vocational education; and (2) maintaining and supporting the region's human resource potential. Similarly, these two characteristics also refer to the importance of *human capital* (Chapter 5).

The policy agenda, in general, emphasizes endogenous development potential in the region by connecting both urban and rural features. Rapid transformation of the society is central in the policy making process as it was explained that:

“Although agriculture was the dominant sector in past times, the changing economic climate has changed the traditional production methods in the agriculture sector...” (MEVKA-interview).

The mapping exercise in Chapter 5 shows that the provinces in this region score highly on the variables employed in the econometric model (see Table 7.6). Especially Konya province has higher values than Karaman province. This can be explained by Konya’s big and dynamic population and hence Karaman’s being dominated by Konya province.

RDA	Provinces	Score								Total
		Variables*								
		T	I	M	P	D	C	A	S	
MEVKA	Konya	5	3	3	5	5	2	3	5	31
	Karaman	3	1	2	3	5	3	3	3	23

Table 7.6 The value distribution of the variables in the MEVKA region

*Note: T= Technological leadership; I= Knowledge creation and access to information; M= Local integration; P= institutional support; D= Human capital; C= Power of large corporations; A= Market accessibility; S= Sectoral specialization.

According to the value distribution between the two provinces, Konya scores very highly in technological leadership (T), institutional support (P), human capital (D) and sectoral specialization (S). The importance of these variables has also been covered in the policy agenda. The human capital variable also remains as significant in Karaman. Although a majority of other variables are dominated by Konya province, the effects of large corporations (C) are more significant in Karaman due to the location choice of big companies in the region. This issue was raised in the focus group discussion:

“For the moment, there are more than 35000 SMEs located in our region. Although the majority of them are located in Konya, this is substituted by the number of big food companies in Karaman” (MEVKA-interview).

The region’s accessibility and knowledge creation capacity were discussed during the focus group discussion. In Turkey, most domestic freight is transported by road (the share of domestic highway freight varied from 88.7% in 2000 to 90% in 2005), although only 14% of the state and provincial roads are suitable for handling heavy loads (DPT, 2007), but; *“luckily, geographical position of the region enables the industries in the region to enjoy the benefits of accessibility to primary and secondary goods”* (MEVKA-interview).

In terms of knowledge creation capacity, there were concerns about the loss of ‘knowledge workers’ who commuted daily to larger metropolitan centres or less marginal areas, for example. As a result of this general outflow, the momentum for generating new enterprising outcomes from within had slowed, and there were doubts

about the ability of the education system to address this apparent lack of regional capacity. This was reflected in low values in terms of the knowledge creation variable in Table 7.6. This point is also very important in terms of interpreting the results of the econometric model. In the analysis, as opposed to the theoretical arguments of the knowledge economy, the knowledge creation variable was insignificant. The focus group discussion highlighted the importance of immigration and emigration by deepening the analysis of the econometric model.

In conclusion, the policy agenda of the MEVKA shows that some of the key concepts such as human capital, competitiveness and institutional support, which are mainly driven by the ninth FYDP, are important in the policy making process of the Agency, and were also emphasized in the econometric modelling.

7.2.1.3 Middle Black Sea Regional Development Agency (OKA)

The Middle Black Sea Development Agency (OKA) was established in 2008 to support economic, social and cultural development of four cities located in the Middle Black Sea Region of Turkey (OKA, 2009). These cities are Samsun, Amasya, Tokat, and Çorum. Although GDP per head (\$1559) is not the highest value in this region, it has the lowest unemployment rate (7%). In that sense, it is important to understand the region's policy framework. The objectives of the Agency are to improve cooperation between the public sector, private sector and NGOs and to promote the effective and efficient use of the resources to accelerate the sustainability of regional

development by evoking local potential (OKA, 2009). The OKA has defined their vision as:

“...an internationally respected institution aiming at making the Region the gate of Turkey opening to the Black Sea, with increased living standards, ecologic sensitivity, competitiveness and fast development” (OKA-interview).

Different from in the previous regions, the vision statement highlights the geographical position of the region and regional connections. Competitiveness and fast development remain crucial in the development process. These concepts are also emphasized in the policy agenda (OKA, 2009). This distinctive focus highlights the relationship between top down economic development policies and a bottom up process in which local issues inform policy development.

Some of the duties of the Agency are (1) to contribute to the improvement of the capacity of the region concerning rural and local development in accordance with the regional plans and programs, and supporting the projects within this extent as well; (2) to improve cooperation between public sector, private sector and non-governmental organizations to achieve regional development objectives; and (3) to undertake research, or have research carried out, concerning the determination of resources and opportunities of the region, acceleration of economic and social development and enhancement of competitiveness, and supporting other research carried out by other persons, organizations and institutions (see Table 7.7). The key concepts in the policy agenda of the region are more developed and comprehensive than the first two regions.

Characteristics of the region
<p>Population: 2.7 million</p> <p>Area: 29.7 km²</p> <p>GDP per head (\$): 1.559</p> <p>Unemployment 7%</p>
Some of the key concepts in the policy agenda of the region
<ul style="list-style-type: none"> * Contribute to the improvement of the capacity of the region concerning rural and local development, * Improving cooperation between public sector, private sector and non-governmental organizations to achieve regional development objectives, and * Undertaking or commissioning research, concerning the determination of resources and opportunities of the region, acceleration of economic and social development and enhancement of competitiveness, and supporting research carried out by other persons, organizations and institutions. <p style="text-align: right;">(OKA, 2009)</p>

Table 7.7 The characteristics and the policy agenda of the OKA

The policy agenda of the Agency highlights some of the key drivers of the econometric model directly and indirectly. The first principle, for example, focuses on improving regional capacity through government intervention which relates to the concept of *institutional thickness*. The second principle raises the importance of collaboration amongst various stakeholders in regional development which reflects the importance of *local integration*. The final principle focuses on the importance of

industries and highlights the concepts of *technological leadership*, *market accessibility*, and *institutional thickness* which were discussed in Chapter 5.

Strengths	Weaknesses
<p>Strong agriculture and animal husbandry</p> <p>Location of the industrial district</p> <p>Higher level of university education</p> <p>Universities and vocational high schools</p> <p>Good level of industrial infrastructure</p>	<p>Limited job opportunities for graduates</p> <p>Water and environmental pollution</p> <p>High level of emigration</p> <p>Lacking entrepreneurship skills</p> <p>Elderly population in agriculture</p>
Opportunities	Threats
<p>Flora and fauna potential</p> <p>Good communication and transportation</p> <p>Historical and cultural heritage</p> <p>Microclimate atmosphere</p> <p>Potential mining areas</p>	<p>Insufficient public investment</p> <p>Procrastination of the investors</p> <p>Insufficient railway infrastructure</p> <p>North Anatolian Fault line</p> <p>Trade off btw agriculture and exports</p>

Table 7.8 SWOT analysis of the OKA (DPT, 2004)

To implement the policy agenda, a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis was considered in the OKA in 2004 in collaboration with various district boroughs in the region (see Table 7.8). The participants included public-private administrations, NGOs and various representatives from local

communities. The results of the initial SWOT analysis were discussed in the focus group meetings and the participants were asked whether they agreed with the results (OKA, 2009). However, more principles need to be included in the region's policy agenda by considering the SWOT analysis. For example, although there is industrial infrastructure and high levels of education in the region, there is no attempt to facilitate the knowledge economy in the region. Similarly, more entrepreneurship skills can be supported by the Agency. To verify this, the previous analysis was revisited.

RDA	Provinces	Score								Total
		Variables*								
		T	I	M	P	D	C	A	S	
OKA	Samsun	3	2	3	3	4	2	2	4	23
	Amasya	3	1	3	3	4	1	2	3	20
	Corum	3	2	3	3	3	1	2	4	21
	Tokat	3	2	3	3	3	1	2	4	21

Table 7.9 The value distribution of the variables in the OKA region

*Note: T= Technological leadership; I= Knowledge creation and access to information; M= Local integration; P= institutional support; D= Human capital; C= Power of large corporations; A= Market accessibility; S= Sectoral specialization.

Table 7.9 shows the results of the mapping exercise for the OKA region. According to the value distributions amongst the provinces in the region, Samsun has relatively

higher values due to the province's population and geographical dynamics. Although the provinces do not have very high values, the provinces have a homogenous distribution according to the variables employed in the econometric modelling. The human capital (H) and the sectoral specialization (S) variables remain significant in the modelling exercise for this region. These two variables are also highlighted amongst the main principles of the policy agenda in the region. Moreover, the technological leadership, integration of local firms and institutional support variables are the other strong indicators in the region. The importance of these concepts is also raised in the focus group discussions:

“... each province in a region has its own driving force [high tech industries]. Sometimes these industries change over time and some other industries emerge in connection with other local industries. Market demand and technology are very important in this change...” (OKA-interview).

Another concept that was raised during the focus group discussion was the region's market accessibility. Empirical analysis shows that this driver is not significant in the region. This was explained as: *“...the maritime ports are facing higher demands than their capacity allows, but there are some ongoing extension investments”* (OKA-interview).

Finally, the previous analysis confirms the strengths and opportunities that were mentioned in the SWOT analysis of the OKA such as the importance of human capital and local integration are also significant in the empirical analysis. To sum up, the

policy agenda of the Agency encompasses some of the key drivers of the empirical analysis. The policy agenda of the OKA shows that the main principles aiming to foster development in the region include the variables employed in the econometric modelling exercise.

7.2.1.4 Eastern Anatolia Development Agency (DAKA)

Established in 2008, the Eastern Anatolia Development Agency operates in Bitlis, Hakkari, Muş and Van provinces with the aim of accelerating regional development and to ensuring sustainability of the development in these provinces. Amongst all the regions in this analysis, the DAKA region has the highest unemployment ratio (14.2%) and lowest GDP value (\$774). Therefore, it is important for the region to formulate appropriate policies to boost the local economy. In that sense, the DAKA has formulated its principles based on the development of “...a *touristic and commercial region aiming at blending its historical and cultural heritage with the Lake Van basin and to be the gate of Turkey opening to the East*” (DAKA-interview).

Some of the key concepts in the policy agenda of the region include (1) ameliorating human resource development and living standards and (2) increasing competitiveness between businesses and encouraging entrepreneurship (Table 7.10). Each principle highlights the importance of some of the key drivers of the econometric model. The first concept, for example, emphasizes three important policies crucial to support *human capital, market accessibility and institutional thickness*. They include analyzing the region’s labour supply and demand situation; employing youth in

potential sectors; and increasing human resource capacity by collaborating with public and private sectors and NGOs.

Characteristics of the region
Population: 2 million Area: 43.5 km ² GDP per head (\$): 774 Unemployment 14.2%
Some of the key concepts in the policy agenda of the region
* Ameliorating human resource development and living standards, and * Increasing competitiveness between businesses and encouraging entrepreneurship. (DAKA, 2008)

Table 7.10 The characteristics and the policy agenda of the DAKA

The second concept highlights the importance of businesses and entrepreneurship in the region. The policies include developing the physical and technical infrastructure; encouraging institutionalization in business; supporting business investment, modernization and capacity building activities; and increasing access to information technologies. It is important to realize that policies formulated around the second concept especially aim to increase *institutional capacity* and *local integration* in the region.

Empirical analysis shows that the drivers of local economic development that were identified in Chapter 5 are not strong in the DAKA region (Table 7.11). Therefore, it is important for the Agency to consider the strengths and opportunities of the region when formulating its policy objectives.

RDA	Provinces	Score								Total
		Variables*								
		T	I	M	P	D	C	A	S	
DAKA	Van	1	2	1	1	1	1	1	4	12
	Bitlis	1	1	1	1	2	1	1	3	11
	Hakkari	2	1	1	2	2	1	1	3	13
	Mus	1	1	1	1	2	1	1	3	11

Table 7.11 The value distribution of the variables in the DAKA region

*Note: T= Technological leadership; I= Knowledge creation and access to information; M= Local integration; P= institutional support; D= Human capital; C= Power of large corporations; A= Market accessibility; S= Sectoral specialization.

For DAKA “...to achieve our strategic objectives, we have to identify our potential in the region” (DAKA-interview). From the empirical analysis, sectoral specialization is the only significant driver amongst the drivers of local economic development in this region. The importance of this driver was raised during the focus group discussion:

“...we believe that we have the SME base to generate more businesses or that SMEs could enable a wider diffusion to other enterprises locally. Although in our region SMEs lag behind in terms of know-how, skill levels, capital investment to support their activities, and access and ability to take advantage of modern technologies, especially in the information and communications fields, they play a very important role in our region” (DAKA-interview).

In this respect, the second key concept of the policy agenda (increasing the competitiveness between businesses and encouraging entrepreneurship) remains important (see Chapter 5). Also the first concept of the policy agenda which is based on human resource development is another significant driver that comes out of the analysis. The other variables have low concentrations in the region which creates a big challenge for the region's local economies. This was mentioned during the focus group discussion:

“Unfortunately, the potential in our region is far behind other regions. Although we have enough reserves to cover 20% of the energy potential in our region, we don't have the technology and infrastructure to use it...” (DAKA-interview).

Also it was stated in the focus group discussion that there were not enough jobs locally for graduates and hence there is a big tendency for educated people to leave the region permanently for larger provinces. This is an important problem which effects knowledge creation in the region and firms that are dependent on technology

and information. Although the policy agenda is not very diverse due to the lack of infrastructure, the current policies which aim to foster endogenous development in the region picks up the variables employed in the econometric modelling. The only criticism raised in the focus group discussion was on the dependent variable of the empirical analysis. In Turkey, the definition of unemployment does not cover those who are working in agriculture. In that sense, in some provinces in which agriculture is dominant such as in this region, the unemployment ratio can be deceiving as it excludes many people engaged in agriculture related occupations who may be under-employed, but are still being counted as in full-time employment.

7.2.2 Recent policy agenda

Since the econometric modelling covers a period between 2004 and 2008, it is important to reflect on whether Turkey's recent policy agenda includes some of the significant drivers of the model developed in the analysis. In 2009, for example, the Turkish Cabinet Council presented a road map for the next three years of the Turkish economy called the Medium-Term Program (OVP, 2009). The program was prepared by the State Planning Organization (SPO). The main objective of this program is to provide suitable infrastructure for sustainable growth of the Turkish economy and to increase the social welfare of the country by realizing the potentials of Turkey's economic and social structure. In the Medium-Term Program, comprehensive structural reforms have been considered to enhance competitiveness and ensure lasting improvements in growth and fiscal balances (OVP, 2009). In this context, some of the goals the Program are:

- To expand the legal infrastructure of public sector - private sector collaboration,
- To include Turkish business representatives in the framing of training programs and the management of vocational schools to enhance the local human capital base,
- To encourage and expand flexible working models to increase formal employment and reduce informal economy,
- To develop the physical infrastructure and teaching strengths of new universities to enhance economic growth, and
- To establish RDAs by the end of the program to support development, competitiveness and innovation to achieve development (OVP, 2009).

The objectives of the Medium Term Program show that the Government has attempted to provide the needs of a sustainable economy, to increase employment, to maintain a deflationary trend and to set public balances. According to this program, the target is that economic growth should be about 3.5 per cent in 2010 and will gradually reach 5 per cent by 2012, hopefully creating 1.5 million jobs. Employment is expected to increase to 42 per cent of the total population by the end of the program. The unemployment rate which is estimated to increase to 14.8 per cent

because of the crisis in 2009 is expected to decline to 13.3 percent at the end of the program's period (OVP, 2009).

Moreover, although the objectives of the Program focus on macro-economic interventions, the main principles aiming to foster regional and national development structure the micro-economic initiatives at the regional and provincial level in Turkey and they include the drivers employed in the modelling exercise. The empirical analysis demonstrated that local integration, human capital and institutional thickness were the key drivers of local and regional economic growth in Turkey. The objectives of the Program confirm that (1) there is a need to increase integration between the public and private sectors; (2) education programs should be encouraged to support the human capital base; and (3) the Government should get involved in the development process via establishing RDAs.

In terms of human capital, in 2009, the United Nations Development Program (UNDP) released its annual Human Development Index (HDI) which indicated that although Turkey's income levels were high, more improvements in terms of education and health services were required (UNDP, 2008). The HDI is a function of three basic dimensions of human development: (1) a long and healthy life, as measured by life expectancy at birth; (2) knowledge as measured by the adult literacy rate and (3) a decent standard of living, as measured by per capita GDP. Turkey ranks 79th out of 182 countries, according to the 2009 HDI. According to Turkey's position amongst those countries, the results highlighted a need for increased efforts that would enable the country to convert its human resources into enhanced human development and

hence policies have been encouraged to increase the HDI of Turkey (see also OVP, 2009). This issue is particularly important due to the Turkey's ageing population.

After 2020, the relative importance of the 15-64 year old age group in Turkey decreases (Ercan, 2007) (Table 7.12). Similarly, the population of 0-14 year old age group also decreases after 2010. That means that Turkey loses the advantage that comes from having a young population. Therefore, it remains crucial for Turkey to support education programs to be able to transform its human resource into enhanced human development. However, it is important to note that the HDI reflects a particular theoretical approach to local economic development. The point here is that the UN analysis might prompt Turkey to develop policies or initiatives intended to enhance human capital without paying much attention to how it relates to local growth. Therefore, there is a chance that Turkey would only be responding to a foreign analysis which would be a problem in the future.

Population	1980	1990	2000	2010	2020	2030	2040	2050
0-14	18719	20500	20764	20370	19874	18834	17902	17346
15-64	25485	34550	43886	52725	59648	63632	64778	63393
65+	2111	2298	3511	4605	6548	10001	14105	18204
Total	46315	57348	68161	77700	86070	92467	96785	98943
Proportion	1980	1990	2000	2010	2020	2030	2040	2050
0-14	40.4%	35.7%	30.5%	26.2%	23.1%	20.4%	18.5%	17.5%
15-64	55.0%	60.2%	64.4%	67.9%	69.3%	68.8%	66.9%	64.1%
65+	4.6%	4.0%	5.25	5.9%	7.6%	10.8%	14.6%	18.4%

Table 7.12 Population – actual and proportion: Turkey 1980-2050 (Ercan, 2007)

Another issue is built on improving and strengthening labour market institutions, in particular at regional and local levels. The EU funded Programme on “Active Labour Market Strategy” has contributed to strengthening the Institutional capacity of the Employment Service (ISKUR) since 2006 (Ercan, 2007). Also a new EU funded Programme to strengthen public employment services on “Active Employment Measures and Support to Turkish Employment Organizations at Local Level” has been implemented since 2008. The project includes an institution building component to assist ISKUR to deliver more effective public employment services at local level and a grant scheme component to deliver active labour market measures for the unemployed (in particular women and young people in selected provinces).

Turkey has also started collecting labour market information allowing for systematic monitoring of the supply and demand for skills and qualifications on the labour market at national and local level since 2005 (Ercan, 2007). ISKUR, in cooperation with TUBITAK (Turkish Science and Research Council) and Gazi University, is systematically collecting data and produces labour market surveys every six months and it intends to undertake surveys every three months in the future. Within the SVET project (Strengthening the Vocational Education and Training System in Turkey) a methodology for an enterprise-based survey of demand for short and medium term qualifications in the labour market is being developed.

7.3 Conclusion

This chapter has explored the ideas that are shaping the current policy agenda and regional development agencies' activities (RDAs) in Turkey. It has utilized policy documents and focus group discussions to understand what kind of strategies policy makers are undertaking in Turkey. It is important to note that the analysis not only looks backwards through exploring national policy documents, i.e. Five Year Development Plans, both also looks forwards through using recent policy documents and the RDA analysis because they discuss actions that are being put in place. These policies and views have been analyzed to understand to what extent current practices cover the empirical results of the previous chapter. The focus group discussions confirmed that the policy agendas of the RDAs include the variables employed in the quantitative analysis. There were insights into unemployment figures, labour flows, industry restructuring, key industry sectors where growth was occurring, changes in demographics, reliance on subsidies, evidence of innovation diffusion, issues to do with entrepreneurship and enterprise, supply of knowledge workers, infrastructure issues, government intervention, education culture, service provision and so on. This means that there are direct and sometimes indirect unintentional impacts of Turkish policy agendas on the integration of small firms, market accessibility and institutional support. Therefore, this chapter suggests that there is a match between what the econometric analysis shows and what happens on the ground in current policy and planning activity. An important determinant of a region's growth prospects is the creative and enterprising behaviour of its local human capital. It is crucial for government policy to support the process of being enterprising, rather than trying to

pick winners or restrict regions to particular areas of work through policy or the provision of sector-specific programs.

8 CONCLUSION

8.1 Introduction

In a dynamic and globalising world, understanding of the economic processes shaping regional economies is in a constant state of change. These processes are important to understand for policy making as governments seek to improve the economic well-being of citizens. The purpose of this thesis has been to develop an understanding of the local and regional dynamics of economic development in the context of the transitioning and emerging economy of Turkey. This study has adopted theoretically informed empirical analysis as a methodology. This methodology involves both an econometric model and qualitative research. The econometric model is based on the selection of proxy measures which are drawn out of theory and empirical analysis of those measures. It is important to note that a theory is not a driver but an amalgam of drivers. The current analysis identified proxy measures embedded in seven theories of local and regional economic development: the growth poles (Perroux, 1955), product cycles (Vernon, 1966), flexible specialization (Scott and Storper, 1992), learning regions (Braczyk *et al.*, 1998; Lundvall, 1992; Maillat, 1996; Maskell *et al.*, 1998), competitive advantage (Porter, 1990); enterprise segmentation models (Taylor and Thrift, 1982, 1983; Dicken and Thrift, 1992); and the creative class (Florida, 2002). From these models, eight drivers were identified. These are technological leadership at the enterprise level, knowledge creation and access to information, integration of small firms, institutional support and thickness, human capital, power of large corporations, market accessibility and sectoral specialization. Document analysis

supported by interviews with groups of policy makers has been intertwined with the results of the model. This study has investigated which of these drivers explain growth in Turkey in the first decade of the 21st century.

This study has highlighted the importance of understanding current local and regional economic development theories and the drivers they incorporate but in the context of emerging economies. Not only did it identify proxy measures to empirically evaluate existing theories, it also explored the influence of Turkish government and regional government policies. This chapter summarizes the main findings of this study, and reflects on the key concepts and frameworks used. The remaining sections of this chapter re-examines the aims and the objectives of the thesis through filling the research gaps; discusses the main contributions that this study makes to economic geography and policy making in Turkey; reflects the research methodology; and proposes avenues for future research.

8.2 Re-examination of the thesis – filling the research gaps

Understanding the processes of change is very important for undertaking regional economic analysis and in planning for regional development. There have been many attempts to understand the dynamics of regional growth through an identification of its underlying internal and external forces and the modelling of their interaction in studies of regional development (Brookfield, 1975; Lucas, 1988; Martin and Sunley, 1998; Plummer and Taylor, 2001a; Coe *et al.*, 2004). But the focus of such studies has been on economically advanced, technologically innovative, and locationally

competitive countries (Ersoy and Taylor, 2011). There is an absence of research on local economic development in those countries or regions that continue to suffer from poverty, unemployment and under-development. The same problem applies *a fortiori* to emerging and developing countries, but with some notable exceptions (Jordaan, 2008a; 2008b). In those situations, the broader picture of the dynamics of regional development, particularly its social and political origins and the overall changes in regional inequality, have remained elusive. This study is an attempt to develop an understanding of the local and regional dynamics of economic development in the context of the transitioning and emerging economy of Turkey.

Seven institutional regional development theories have been analyzed and eight hypothesised drivers of regional growth have been identified for the Turkish context. These drivers are nested within an over-parameterized general model. This is because the theoretical propositions contained in the individual theoretical models are either ambiguous or lack clarity of expression. Even though it is possible to identify proxy measures, assessing the impacts of these theoretical models on local and regional economic performance becomes more ambiguous. While these models provide little explanation by way of guidance, the general model offers an explanation to the possible form of the functional relationship between the set of proxy measures and local economic performance. Moreover, to establish whether the general model captures any specific information that is not embodied in the seven theoretical models, a variance encompassing procedure is employed to test the validity of the restrictions that are imposed on this general model by the seven models (see Plummer and Taylor, 2001b). The encompassing model is defined as the model in which variance

dominates the set of alternative model specifications in the sense that the other models contain no information capable of improving the model (Hendry and Mizon, 1990; McAleer, 1994). Assuming that the linear restrictions imposed on this general model are correct, the seven theoretical models are associated with null hypotheses after the model is run. Not only has this form of analysis not been undertaken in Turkey before, but the theories themselves have had a major impact on the development of Turkish regional policy making.

None of the theories that were calibrated in this study provide a significant explanation of differential regional economic growth in Turkey. In the general model, the test statistics suggest that some drivers within the theoretical models do contribute to explaining Turkish local and regional economic growth. This explanation is one that differs from that offered by other theories. The analysis suggests that implementing policies based on the processes postulated in only one particular model and theory is inappropriate. Individually, none of the models explored in this thesis would be enough to explain the dynamics of Turkey's regional economies. In other words, as an overall assessment, the result of the current study is a veritable Curate's Egg – good in parts. Local integration of small firms, institutional thickness, the local human resource base and accessibility to intermediate markets are the good parts that foster economic growth in Turkey. On the contrary, knowledge creation and access to information restricts rather than enhance economic growth. Technological leadership, the power of larger corporations and sectoral specialization are insignificant in the explanation of differential regional growth in Turkey. None of the seven models explored in the analyses provide a full explanation of the dynamics of Turkish

regional development, but elements of them all have resonance with regional economic growth in Turkey.

8.3 Contribution to the Field of Knowledge

The history of regional policy development raises important questions in relation to the policies and practices of regional economic planning. These policies and practices are of major social, economic and political significance for Turkey since they directly affect the operation of Turkey's emerging regional economies and also the quality of life in local communities. The processes involve significant policy implications for government at the national and regional levels as they seek to maximise and optimize economic growth. The aim of this thesis has been to understand the dynamics of Turkey's emerging economy by exploring a theoretically informed econometric analysis. This methodology contributes to the debate on the nature of local and regional economic development in Turkey by explicitly relating context, substance and process. The analysis conceptualizes a set of local and regional economic development theories and derives variables that link technology, knowledge, businesses, institutions, human capital, corporations, markets and specialization. These factors are identified by developing hypotheses which can be empirically investigated and that are informed by existing theory.

To illustrate, *technological leadership* is defined as the proportion of employment in a province in 'High Technology Manufacturing', a category defined according to OECD criteria (OECD, 2005). Empirical analysis shows that technological leadership

is not significant to explain Turkey's differential economic growth. This result contributes to the literature on the importance of medium and low-tech manufacturing sectors which suggests that the growth of high-tech industries for economic development is not the only way to achieve high value-adding (Hirsch-Kreinsen *et al.*, 2005; Sandven *et al.*, 2005; von Tunzelmann and Acha, 2005; Bryson *et al.*, 2008; Freddi, 2009). Rather than focusing on high-tech manufacturing, it is vital to explore how the existing knowledge base of low-tech industries can be combined and blended to generate a mutual process of further development.

Knowledge creation and access to information is an index of accessibility to information. This measure considers the proportion of knowledge workers in each province. Much of the literature on knowledge intensity and services has concentrated on knowledge intensive business services (KIBS) (Bryson *et al.*, 1992; Hertog, 2000; Larsen, 2001; Lu and Sexton, 2006; Miles, 2007; Miozzo and Grimshaw, 2005). The common characteristic of these industries is that their activities require a relatively high intellectual knowledge and depend less on the traditional production factors of labour and land. The definition of knowledge creation and access to information contributes to this literature through constructing an index of accessibility to information and knowledge in which the estimates of knowledge worker numbers are built into an interaction model that measures "knowledge at a distance".

The concentration of SMEs, as an index of small firm integration in a province, is measured as the percentage of SMEs in each province. Empirical analysis showed that small firms tend to concentrate around the big regional capitals, i.e. Istanbul, Ankara

and Izmir, in Turkey. Following the big metropolitan provinces, the Aegean and the Mediterranean parts of Turkey have big concentrations of smaller firms. On the other hand, the eastern part of Turkey has a smaller concentration. The overall picture of the distribution contributes to the literature which also explains spatial inequalities between the eastern and western parts of Turkey (Celebioglu and Dall'ërba, 2009; Gezici and Hewings, 2004; Ozturk, 2002; Tansel and Gungor, 2000; Ates *et al.*, 2000).

Institutional support is calibrated as the proportion of a province's institutions that promote and support industries such as public and Higher Education laboratories. This measure is correlated significantly with a number of alternative measures, such as total number of NGOs, municipality expenditures, public infrastructure, the value of investment incentives and collaborative knowledge creation facilities in a province indicating the broad range of this concept (Ersoy, 2011). The result of this correlation and the overall significance of this variable contribute to the literature which suggests that social consensus, institutional support for local business, innovation, skill formation and the circulation of ideas remain crucial to change the direction of economic development to more 'social' and 'cultural' issues (Amin and Thrift, 1994; Asheim, 1996). Also it shows that a high number of institutions (the presence of institutions) do not necessarily mean interaction (the processes of institutionalisation) amongst them (Ersoy, 2011).

Human capital is measured as the percentage of the working population without primary school degrees and hence for this analysis has a negative sign. Empirical

analysis suggests that human capital enhances local and regional economic development in Turkey. A significant number of papers also state that there is a connection between the initial level of human capital in an area and economic growth regardless of how Human capital is measured (Clark *et al.*, 2000, Glaeser, 1994; Glaeser *et al.*, 1995; Mody and Wang, 1997; Simon and Nardinelli, 1996, 1998). This study also shows that there is a strong, steady link between growth and initial skills in Turkey.

The power of large corporations is developed from the “Top 500 industrial enterprises” 2008 list of Istanbul Chamber of Industry (ISO). For each corporation the measure of size used is net productive profit, which has been assigned to the province within which it is headquartered. For the analysis, the measure is expressed as production profit per resident person in a particular province. Empirical analysis shows the overall picture of corporate control in Turkey. Literature in corporate control in Turkey points to the role of the dominant shareholders, i.e. families, and the ownership structure of Turkish companies as a majority of them are owned or controlled by families (Demirag and Serter, 2003; Aytac and Sak, 2000). Similarly, this study shows that top 10 enterprises within the distribution of top 500 enterprises in 2009 are dominated by families and big enterprises.

Market accessibility is calibrated through a simple interaction model in which size is measured as employment in manufacturing and construction, and distance is measured as road distance. It is, in essence, a measure of the market at a distance for each province of Turkey. In theory, market accessibility is posed in terms of the

neoclassical theory in which a country specializes in the commodity that requires the most abundant factor of production of that country (Moroney and Walker, 1966; Moroney, 1970; 1975; Klassen, 1973; Greytak, 1975). According to the analyses, provinces that are least accessible are likely to be the least attractive locations for manufacturing – either locally developed or brought in from elsewhere. Places with good access to intermediate goods are, therefore, likely sites of future secondary industry. The propositions would suggest that future industrial development will be confined by and largely to the metropolitan centres of İstanbul, Ankara and İzmir in particular, but also to Adana and Antalya. While some provinces could develop into a service node for the metropolitan centres, some would remain as an under serviced resource hinterland; a fate which might equally be shared by the deeper parts of the Aegean region and the northern parts of Turkey.

Finally *sectoral specialization* is developed using Isard's specialization index and is built on counts of business establishments by sector in each city in 2002, with establishments having been assigned to the categories of the Classification of Economic Activities in the European Community (NACE 1.1) divisions. Studies of sectoral specialization have drawn attention to the importance of intimate relationship between the principles of specialization and the division of labour growth (Isard, 1960; Lampard, 1955; Phelps and Ozawa, 2003; Scott, 1982, 1988a; Sayer and Walker, 1992; Storper and Walker, 1989; Walker, 1985). Unfortunately, the empirical results of this study show that sectoral specialization which provides an essential link between the technical and spatial conditions of economic progress is not significant to explain Turkey's differential economic growth. This result contributed to the literature

which explains spatial inequalities between the eastern and western parts of Turkey in terms of migration from east to west (Elveren and Galbraith, 2008; Kirdar and Saracoglu, 2007) because this affects the distribution of labour force across Turkish provinces.

In the current research, the changing rate of unemployment, rather than the growth rate in employment has been utilized as a dependent variable in a local economy since measuring economic growth in terms of employment growth can only explain the determinants of growth on the demand side of the labour market (Plummer and Taylor, 2001b). In contrast, changes in the rate of unemployment are sensitive to changes both in the demand for labour and in the supply of labour. For the present analysis, therefore, the economic performance of a region is defined in terms of its prevailing unemployment rate relative to an economy wide average. Therefore, those provinces with lower unemployment rates have *ipso facto* higher employment rates and are imputed to have better economic performance. This study in that sense contributes to the literature which uses the rate of unemployment as a dependent variable (Fu *et al.*, 2010; Griffith *et al.* 2007). This study has not only described how those hypothesised drivers could be measured in the Turkish context, but also it has explored the selection of a set of variables in Turkey that can be used to examine the relationship between theory and Turkey's functioning economic geography.

These drivers are then employed in an econometric model. The main contributions to the field of knowledge are in the following areas: the theoretical and modelling framework; the dynamics that drive local and regional economic development in

Turkey; and the empirical results and the policy directions facilitating economic development in Turkey. These will be examined in turn in the next session.

8.4 Empirical results and policy directions

This study explains the usefulness of seven theoretical models of local economic growth for explaining the dynamics of local unemployment in Turkey for the period of 2004 and 2008. From the theoretical models, eight dimensions representing the hypothesized drivers of local economic changes have been derived which have been incorporated into an empirical modelling process. Given the model specification, there are some possible inferences to be drawn from the findings. When different combinations of drivers have been compared with the general model containing them all, none has been found to offer a significantly improved explanation. The Turkish analyses suggest that in this context none of the theoretical models that were calibrated in this study provided a significant explanation of differential regional economic growth in that country. However, in the general model, the test statistics suggest that some drivers within the theoretical models do contribute to an explanation of local and regional economic growth in Turkey.

The general model suggests four important drivers shape the dynamics of Turkey's regions: (1) *local integration of small firms* in the country's regions appears to *enhance* local economic growth; (2) *institutional thickness*, including infrastructure support, also seems to *foster* local economic growth, possibly reflecting the success generated by local institutions and national policy efforts in building the local

economic capacities of places; (3) the *local human resource base* of Turkey's regions is a *driver* of local economic growth, demonstrating the importance of human capital in this country as in many others; and (4) also *fostering* economic growth in Turkey is *accessibility to intermediate markets* – to markets in Turkey for products and manufactured goods rather than services of one sort or another.

The locational integration of small firms is emphasized in almost all the approaches as essential for local economic growth. In the globalisation process, the characteristics of localities become crucial as they have been considered the only ways to create comparative advantage in a local economy. This variable captures the importance for growth of closely linked small producers and service providers, cooperation based on trust and reciprocity, and the importance of competition based on quality as well as price (Glaeser, 2000; Bryson and Rusten, 2011). The empirical analysis in this study shows that local integration of small firms in Turkey enhances local economic growth. This is a possible indication of an incipient enterprise culture in those places with the emphasis on the local engagement of local firms and SMEs. Therefore, this study shows that it is crucial to support policies promoting the facilitation and integration schemes of SMEs in Turkey.

The concept of institutional thickness is a very broad issue to conceptualize because it is essentially intangible. It suggests that a variety of different institutions including financial institutions, local chambers of commerce, training agencies, trade associations, local authorities, development agencies, Higher Education Institutions (HEIs), etc. are essential in the theories of local economic development. In this study,

institutional thickness fosters local economic growth. This indicates that the success generated by local institutions and national policy efforts in building the local economic capacities of places is crucial in understanding the dynamics of local and regional development in Turkey.

The local human base is an important element of entrepreneurship which directly links to human capital theory (Schultz, 1975; 1980). The basic premise of this theory is that people invest in themselves through education and training to obtain higher earnings. Higher investment in human capital creates a higher labour productivity and hence it promotes entrepreneurial success (Tamasy, 2006). At the moment, although there have been attempts to develop human capital in Turkey, this indicator is considerably weaker than most other European countries. However, the analysis shows that the local human resource base of Turkey is one of the important drivers of local economic growth. This result not only demonstrates the importance of human capital in Turkey but also raises questions in terms of how human capital should be developed and be integrated into economic development. This indicator, therefore, should be examined carefully and be considered in relation to local integration of small firms, which indicates a possible creation of incipient enterprise culture.

Understanding the determinants of interregional commodity flows is critical for both transportation infrastructure planning (highways, railroad tracks, river/port facilities) and regional development policies (location of activities, reducing regional disparities). Fostering economic growth in Turkey is accessibility to intermediate markets – to markets in Turkey for products and manufactured goods rather than

services of one sort or another. This is a result quite different to those of the Australian analysis, but a result that mirrors the significance of manufacturing (especially textiles and clothing account for one-third of industrial employment and they are very competitive in international markets) in the Turkish economy and its major contribution to exports and to national economic growth. Since Turkey is positioning itself and preparing for entry into the European Union, this indicator remains crucial in terms of supporting, harnessing and enhancing the economic growth potential of Turkey's constituent regional economies.

Contrary to theory-based expectations, knowledge creation and access to information was shown in the analysis to restrict rather than to enhance economic growth across Turkey's provincial economies. This is a difficult finding to understand, but a finding that is important and thought-provoking and needs careful interpretation and further analysis. It relates in some ways to the major concentration of the knowledge economy in Istanbul and Ankara but may also relate to the concentration of large and foreign owned firms in the Western provinces of the country. However, conjecture is no answer. What is needed is further, in-depth analysis. In this case, knowledge creation can be explained in relation to the migration of people and hence it is in part a reflection of the changing state of development in Turkey. However, in the future, this might not be the same with the changing style of education system and economic activity that is underlying in Turkey.

As an overall assessment, none of the models explored in the analyses provide a full explanation of the dynamics of Turkish regional development at the beginning of the

21st century, but elements of them all have resonance with regional economic growth in Turkey. In other words, empirical analysis shows that Turkey is a differently structured economy and there is no one theory that gives an adequate explanation for Turkish regional growth. There is more to the regional development process in Turkey than any one of those theoretical constructs has shown on its own, i.e. the general model is better than the theoretical models. However, it is also important to note that, given the complexity of geographical reality and empirical evaluation, it is not possible to aim for a general model that captures all the essence of theories of local and regional economic development. There is a discrepancy between the theoretical information provided by those theoretical constructs and the availability of data. However, even in the absence of adequate explanation, it is possible to aim for hypothetical knowledge of the processes driving local and regional economic growth. It is always possible to alter the findings of this thesis or similar studies in the light of new empirical evidence, more accurate measurement systems, better estimation techniques or more advanced theoretical models.

According to the test statistics, higher levels of local human capital would have higher estimated employment in Turkey. However, since this indicator is measured as the proportion of the population without primary school degrees, it has a negative sign. That means that jobs are being created where there is no need for higher levels of education and training. This highlights that unskilled and low tech industry is dominant in Turkey. Firms are capitalizing on cheap and unskilled labour, but this result would create long term problems. Therefore, this measure needs further investigation and consideration for policy makers in the Turkish context and in other

transition economies. Also high levels of local integration, local demand and institutional support would foster higher estimated employment. When the findings are drawn together they suggest, tentatively, a very distinctive form of production-based regional economic growth across Turkey's provincial economies built on linked small manufacturing firms, local human capital, local institutional support, and access to intermediate goods markets. It is an interpretation that is consistent with Turkey's manufacturing and production firms being subordinated within value chains dominated by large, and in many cases foreign-owned, corporations. But, as this analysis implies, this is not a situation easily addressed through current theoretical understandings of the processes shaping regional and provincial economic growth in countries at the same or similar stages of development as Turkey. More controversially, some drivers from theory have no relation or negatively associated with the model such as knowledge creation, sectoral specialization, the power of large corporations and technological leadership. These are examined in turn here.

Knowledge creation and access to information is negatively associated with growth in Turkey. That means cheap and unskilled labour is supported by industry (SMEs), government (institutional thickness) and market access. In other words, Turkey has become a subcontract manufacturer for the EU and elsewhere. This is an important and thought provoking policy in relation to Turkey's economic position in the EU and in the world. More controversially, some indicators in the model have no relation with the model. The local sectoral specialization and power of large corporations variables, for example, have no impact on local growth. Similarly, the technological leadership variable also has no correlation with the model. This is a particularly important

finding in relation to the role of high tech industries in the local growth process because the technological leadership measure implies that the types of industries being used and supported are central to economic development. This is a finding that does not marry with the existing models of knowledge and learning based economic growth that is said to promote high-tech industries and underpin developed market economies of Europe and the world.

The empirical results and the policy directions show that the dynamics and mechanisms in Turkey's economic geography not only differ from developed market economies but also from other developing economies. The geographical profile of Turkish economic growth points out that the geographical location of provinces in Turkey influences socio-economic indicators (income, health, education, SMEs, specialization) in the favour of the western regions. The insignificance of various variables is explained by this difference. The structure of demand puts Turkey in a position where infrastructural investment becomes vital. The significance of the institutional support variable is the best proof for this argument. Also being an export oriented economy reflects on Turkey's market accessibility in a positive direction. However, even though Turkey's human resources have increased significantly over the last years, Turkey's commitments under international agreements restricted the Turkish state's ability to provide direct support to high-tech exports. For instance, export orientation of the Turkish economy took place simultaneously with trade liberalization and other neoliberal reforms. Therefore, unlike other developing countries such as South Korea and Taiwan, the Turkish state could not develop and pursue a consistent strategy for promoting high-tech industries.

In summary, it is important for policy makers to modify the current Turkish policy framework for local and regional development. More emphasis is needed on local integration of SMEs, institutional support, human capital and market accessibility. The role of different actors (entrepreneurs, universities, intrapreneurs in existing firms) and their interactions should be investigated in this emphasis. It is also important to note that the drivers that have been discussed in the analysis are in a constant state of change. The role of the researcher in this study is not to caricature the Turkish economy, but to signal the point of development that Turkish regional policy has currently achieved and also to highlight issues or interventions that might enhance local economic development.

8.5 Reflection on the Research Process and the Future Research Agenda

In the analysis, a number of difficult and contentious issues were confronted that urgently need to be debated in economic geography. They can be categorized under three different topics: the construction of theories, the econometric modelling strategy and future research agendas.

The first issue is the construction of theories of local and regional economic development. In this study, the degree to which theories of local and regional economic development can be tested adequately using an econometric-based methodology was explored. To start with, the aim was to provide a general understanding of theories of local and regional economic development. In the later stages, for example, the process of mapping between theories of local economic

growth and numeric (surrogate) variables, fundamental issues about the adequacy, or even the appropriateness, of translating the dimensions postulated by the theories into measurable parameters (see Plummer and Taylor, 2001a) were experienced. There exists a pragmatic problem concerning the selection of appropriate proxy-variables, given the limited choice of variables that are typically available for this type of regional economic analysis. This problem is explained by the fact that these theories are not always straightforward to translate into testable propositions with observable implications. The theories tend to be built on the stylized facts, such as ‘learning’, ‘knowledge’, and ‘institutional thickness’ constructed without real attention to understanding how they are going to be tested. Consequently, the process of hypothesis generation attempted in this study confronts, at least in a preliminary way, a major issue that urgently needs to be addressed in economic geography. Should we develop theories easier to test or should theories be developed theoretically in relation to data availability? Since the existing theories of economic geography are too stylized to be tested adequately, quantitative theory building might produce a different but more concise set of theories to those produced by qualitative theories. Alternatively, a dual approach might be practised in theory building.

The second issue is related to the econometric modelling strategy adopted in this study. The empirical results of this thesis have shown that no current theory of differential regional economic growth drawn from a developed country context provides an adequate understanding of the processes shaping regional growth in a developing country context. This needs further investigation in terms of developing more nuanced and locally relevant models of regional dynamics in the developing

country context. More qualitative research should be integrated into the quantitative analysis to deepen the analysis. As globalization deepens and extends, developed and developing economies become increasingly intertwined. A fuller and more locally relevant understanding of local and regional economies is, therefore, essential for the formulation of appropriate regional policies that are locally nuanced and locally relevant if places are to benefit from the potential that globalization has to offer.

Further research is required on other developing or Turkic countries that would apply the same modelling strategy developed in this thesis. It is essential to develop a general overview of the practicality of developing local and regional development theories that are suitable for developing countries. By comparing other developing countries, it would be possible to build a modest model for understanding local economic development. The new model could also be applied in developed market economies rather than only to transitioning economies.

Finally, this study points to wider research areas of economic geography. For example, it sheds light on inter-business relationships. This study questions how foreign owned businesses operate in Turkey and how people achieve local growth and local knowledge transfer out of the branch plant economy. In Turkey, the branch plant economy is either externalized through sub-constructors working for overseas firms, or it is operated through the main headquarters which are located in big metropolitan cities. Although knowledge creation is an essential element of economic growth, the empirical analysis has shown that the knowledge creation variable is negatively related with economic growth in Turkey. Given the characteristics of foreign owned

businesses in Turkey, it is important to consider the following question: how do we create a situation that would anchor the knowledge base from those externalized?, centralized operations in the regional economy?, and how do we make sure that knowledge sticks in those places? Knowledge creation or ordinary education would not be enough to answer these questions. What is needed is commercial education such as apprenticeship schemes, building entrepreneurial capacity through local education support such as teaching business planning, accounting or human resource management. These issues need further investigation.

8.6 Summary and Conclusions

Human capital, SMEs, market accessibility and institutional support are the keys to employment and local economic development in Turkey. The findings of this study provide a better understanding of the dynamics of local and regional economic development in Turkey. The analysis of policy documents supported by focus group discussions show that there is a match between the econometric analysis and what happens on the ground as it is reflected in current policy and planning documents and the perceptions of policy makers. An important determinant of a region's growth prospects is the creative and enterprising behaviour of its local human capital, in addition to its structures or the behaviour of its institutions. It is crucial for government policy to support the process of being enterprising, rather than trying to pick winners or restrict regions to particular areas of work through policy or the provision of sector-specific programs. In particular, a common feature of most non-metropolitan regions was the tendency of tertiary-educated people to leave more

marginal areas for larger centres. Often the perception is that non-metropolitan regions do not have enough graduate jobs. In the southern and northern parts of Turkey, there was also a concern at the loss knowledge workers who commuted daily to more central metropolitan centres. As a result of this general outflow, the momentum for generating new enterprising outcomes from within had slowed, and there were doubts about the ability of the education system to address this apparent lack of regional capacity. Another concern was about using the unemployment rate as a dependent variable. As in Turkey unemployment does not cover those who are working in agriculture and may be under-employed. However, many agricultural workers work in the fields not to earn money but to survive and they are not considered to be a part of the active economy. In provinces where agriculture is dominant, the unemployment ratio can be deceiving.

A continual assessment and review of current policies intended to foster local economic development allows for the identification of bottlenecks and innovative measures to be put into place to minimise or solve them. The successful implementation of the proposals through a coordinated effort from the government, the RDAs and local communities could have a synergistic effect on stimulating economic development in Turkey. This could create new jobs and hence reduce unemployment. This study has highlighted the complexities of local economies and the difficulties that occur when applying 'developed' economies' theories of local and regional economic development to transitioning economies. Key to the analysis is the identification of the importance of human capital, SMEs, market accessibility and institutional support as key drivers of local economic development. Nevertheless,

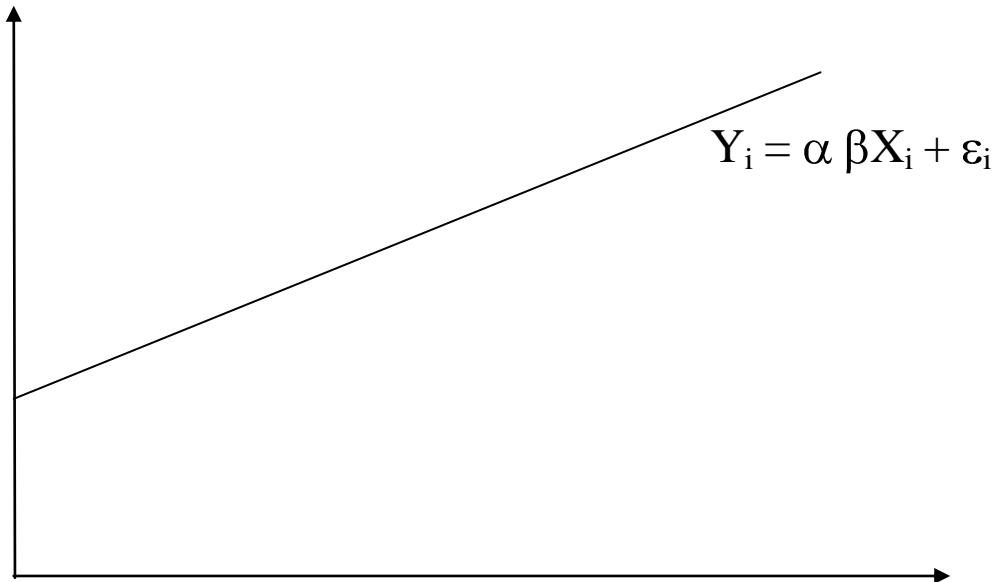
further research is required to develop a more general model of local economic development that can be tested in different national and regional contexts. The development of such a model is an exciting challenge for economic geography and should be the focus of theoretically informed quantitative and qualitative research.

APPENDICES

Appendix 1: Ordinary Least Squares

Ordinary least squares (OLS) or linear least squares is used in the equation as a method for estimating the unknown parameters in a linear regression model. The aim of using OLS here is to fit a line, $Y = \alpha + \beta X$, to a series of data points by choosing $\hat{\alpha}$ and $\hat{\beta}$ as estimates of α and β to minimise

$$\begin{aligned} & \sum_{i=1}^n \varepsilon_i^2 \\ &= \sum_{i=1}^n (Y_i - \hat{\alpha} - \hat{\beta} X_i)^2 \end{aligned}$$



Define $Q = \sum_{i=1}^n (Y_i - \hat{\alpha} - \hat{\beta} X_i)^2$

Objective is to choose $\hat{\alpha}$ and $\hat{\beta}$ to minimize Q.

$$\frac{\partial Q}{\partial \hat{\alpha}} = \sum_{i=1}^n 2(Y_i - \hat{\alpha} - \hat{\beta}X_i) (-1) = 0$$

$$= \sum_{i=1}^n Y_i - \sum_{i=1}^n \hat{\alpha} - \hat{\beta} \sum_{i=1}^n X_i$$

$$\therefore \sum_{i=1}^n Y_i = n\hat{\alpha} + \hat{\beta} \sum_{i=1}^n X_i$$

$$\Rightarrow \hat{\alpha} = \bar{Y} - \hat{\beta}\bar{X}$$

Substituting $\hat{\alpha}$ into Q gives

$$Q = \sum_{i=1}^n \left[Y_i - \bar{Y} - \hat{\beta} (X_i - \bar{X}) \right]^2$$

$$\frac{\partial Q}{\partial \hat{\beta}} = \sum_{i=1}^n -2 \left[Y_i - \bar{Y} - \hat{\beta} (X_i - \bar{X}) \right] (X_i - \bar{X}) = 0$$

$$= \sum_{i=1}^n (Y_i - \bar{Y})(X_i - \bar{X}) - \hat{\beta} \sum_{i=1}^n (X_i - \bar{X})^2 = 0$$

$$\therefore \hat{\beta} = \frac{\sum_{i=1}^n (Y_i - \bar{Y})(X_i - \bar{X})}{\sum_{i=1}^n (X_i - \bar{X})^2}$$

The ordinary least squares estimators $\hat{\alpha}$ and $\hat{\beta}$ of the regression equation $Y = \alpha + \beta X$ are the best linear unbiased estimators (BLUE). This means that out of the class of linear unbiased estimators, the least squares estimators have the smallest variances. To show that $\hat{\beta}$ is a linear function of Y_i :

$$\begin{aligned}\hat{\beta} &= \frac{\sum_{i=1}^n (X_i - \bar{X})(Y_i - \bar{Y})}{\sum_{i=1}^n (X_i - \bar{X})^2} = \frac{\sum_{i=1}^n (X_i - \bar{X})Y_i - \bar{Y} \sum_{i=1}^n (X_i - \bar{X})}{\sum_{i=1}^n (X_i - \bar{X})^2} \\ &= \frac{\sum_{i=1}^n (X_i - \bar{X})Y_i}{\sum_{i=1}^n (X_i - \bar{X})^2} \quad \text{as } \sum_{i=1}^n (X_i - \bar{X}) = 0\end{aligned}$$

Therefore $\hat{\beta}$ is a linear function of Y_i where

$$\hat{\beta} = \sum_{i=1}^n w_i Y_i \quad \text{with} \quad w_i = \frac{(X_i - \bar{X})}{\sum_{i=1}^n (X_i - \bar{X})^2}$$

Properties of w_i :

$$\text{a) } \sum_{i=1}^n w_i = 0$$

$$b) \sum_{i=1}^n w_i^2 = \frac{1}{\left[\sum_{i=1}^n (X_i - \bar{X})^2 \right]^2} \sum_{i=1}^n (X_i - \bar{X})^2 = \frac{1}{\sum_{i=1}^n (X_i - \bar{X})^2}$$

$$c) \sum_{i=1}^n w_i X_i = \frac{\sum_{i=1}^n X_i (X_i - \bar{X})^2}{\sum_{i=1}^n (X_i - \bar{X})^2} = 1$$

Consider $\hat{\beta} = \sum_{i=1}^n w_i Y_i$

Recall that $Y_i = \alpha + \beta X_i + \varepsilon_i$ and substitute into the above equation to give

$$\hat{\beta} = \sum_{i=1}^n w_i (\alpha + \beta X_i + \varepsilon_i)$$

$$= \alpha \sum_{i=1}^n w_i + \beta \sum_{i=1}^n w_i X_i + \sum_{i=1}^n w_i \varepsilon_i = \beta + \sum_{i=1}^n w_i \varepsilon_i \quad \text{given the properties of } w_i$$

$$E(\hat{\beta}) = \beta + E\left(\sum_{i=1}^n w_i \varepsilon_i\right) = \beta + \sum_{i=1}^n w_i E(\varepsilon_i)$$

$= \beta$ as $E(\varepsilon_i) = 0$ for all i . Hence, OLS estimates are unbiased.

$$\begin{aligned}
\text{Var}(\hat{\beta}) &= \text{Var}\left(\sum_{i=1}^n w_i Y_i\right) \\
&= \sum_{i=1}^n \text{Var}(w_i Y_i) \text{ due to independence} \\
&= \sum_{i=1}^n w_i^2 \text{Var}(Y_i) = \sum_{i=1}^n w_i^2 \sigma^2 \text{ as } \text{Var}(Y_i) = \sigma^2
\end{aligned}$$

To show that the least square estimator has the smallest variance out of the class of linear unbiased estimators, consider any unbiased estimator of β

$$\hat{\beta} = \sum_{i=1}^n c_i Y_i \text{ where } c_i = w_i + d_i$$

For $\hat{\beta}$ to be unbiased d_i must fulfill certain conditions

$$\begin{aligned}
\hat{\beta} &= \sum_{i=1}^n c_i (\alpha + \beta X_i + \varepsilon_i) \\
&= \sum_{i=1}^n \alpha c_i + \sum_{i=1}^n \beta X_i c_i + \sum_{i=1}^n c_i \varepsilon_i = \alpha \sum_{i=1}^n c_i + \beta \sum_{i=1}^n X_i c_i + \sum_{i=1}^n c_i \varepsilon_i
\end{aligned}$$

$$E(\hat{\beta}) = \alpha \sum_{i=1}^n c_i + \beta \sum_{i=1}^n X_i c_i \text{ as } \sum_{i=1}^n E(c_i \varepsilon_i) = 0$$

$$= \beta \text{ if and only if } \sum_{i=1}^n c_i = 0 \text{ and } \sum_{i=1}^n c_i X_i = 1$$

Given the properties for w_i above for $\sum_{i=1}^n c_i = 0$ and $\sum_{i=1}^n c_i X_i = 1$ require

$$\sum_{i=1}^n c_i = \sum_{i=1}^n w_i + d_i = \sum_{i=1}^n w_i + \sum_{i=1}^n d_i = 0 \Rightarrow \sum_{i=1}^n d_i = 0$$

$$\sum_{i=1}^n c_i X_i = \sum_{i=1}^n w_i X_i + \sum_{i=1}^n d_i X_i = 1 \Rightarrow \sum_{i=1}^n d_i X_i = 0$$

Now consider

$$Var(\hat{\beta}) = E \left[\hat{\beta} - \beta \right]^2 = E \left[\left(\sum_{i=1}^n c_i e_i \right)^2 \right] = \sum_{i=1}^n c_i^2 E(e_i^2)$$

$$= \sigma^2 \sum_{i=1}^n c_i^2 = \sigma^2 \sum_{i=1}^n (w_i + d_i)^2$$

$$= \sigma^2 \left[\sum_{i=1}^n w_i^2 + 2 \sum_{i=1}^n w_i d_i + \sum_{i=1}^n d_i^2 \right]$$

$$\text{As } \sum_{i=1}^n w_i d_i = \frac{\sum_{i=1}^n (X_i - \bar{X}) d_i}{\sum_{i=1}^n (X_i - \bar{X})^2} = 0 \quad \text{due to } \sum_{i=1}^n X_i d_i = 0$$

$$\therefore Var(\hat{\beta}) = \sigma^2 \sum_{i=1}^n w_i^2 + \sigma^2 \sum_{i=1}^n d_i^2$$

$$Var(\hat{\hat{\beta}}) = Var(\hat{\beta}) + \sigma^2 \sum_{i=1}^n d_i^2$$

Hence $Var(\hat{\hat{\beta}}) > Var(\hat{\beta})$ as $\sum_{i=1}^n d_i^2$ is non-negative and is only zero if and

only if each value of d_i is zero. Consequently ordinary least squares estimates are best linear unbiased estimates assuming the basic assumptions hold.

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