REGIONAL UNEVEN DEVELOPMENT AND LIBERALISATION IN TURKEY

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ABSTRACT

REGIONAL UNEVEN DEVELOPMENT AND LIBERALISATION IN TURKEY

Liberal economic programmes have been systematically implemented in Turkey since the early 1980s. These programmes aimed to launch a transformation, from import substitution under state direction to export oriented open-market conditions. Following this transformation, economic, political, institutional and spatial structures have drastically changed. Moreover, this process resulted highly uneven in terms of income distribution, both socially and geographically.

The objective of this thesis is to analyse the relationships between regional uneven development and liberalisation in the case of Turkey; by doing this, it also contributes to the debates on liberalism through the revision of mainstream approaches by, per contra, drawing on the principles of critical approaches in a comprehensive way owing to the understanding provided by the concepts of 'actually existing neoliberalism', and 'spatio-temporal fixes'.

To this end, beside descriptive statistics and well-known inequality indices, empirical analyses including nonspatial and spatial convergence models are applied at the level of NUTS 2. In addition, these analyses are completed through the distribution dynamics approach, which offers insights on the cross-sectional distribution of income. The analyses, on the one hand, report an overall slow convergence between regions; on the other hand, a polarisation issue in the regional pattern is identified in terms of notable gaps between three income levels. Findings indicate that liberal policies have not offered a permanent solution for the issue of uneven development. Therefore, closing regional disparities should be a serious policy concern and economic strategies should be better aligned with spatial/regional policies to address uneven development.

ÖZET

BÖLGESEL EŞİTSİZ GELİŞME VE TÜRKIYE'DE LİBERALLEŞME

Liberal ekonomik programlar Türkiye'de 1980'li yılların baslarından bu yana sistematik olarak uygulanıyor. Bu programlar temelde devlet idaresindeki ithal ikameci büyüme modellinden ihracata yönelik serbest piyasa modeline geçişi hedefliyordu. Bu dönüşümü takiben, Türkiye'de ekonomik, politik, kurumsal ve mekânsal yapılar ciddi şekilde değiştiler. Dahası, bu süreç gelir dağılımı kapsamında hem sosyal hem de coğrafi olarak oldukça eşitsiz sonuçlar doğurdu.

Bu tez bölgesel eşitsiz gelişme ile liberalleşme arasındaki ilişkiyi Türkiye örneğinde çözümlemeyi hedefliyor. Bunu yaparken, bir yandan ana akim yaklaşımları detaylı olarak incelerken, öte yandan eleştirel yaklaşımlardan devraldığı 'reel neoliberalizm' ve 'zaman-mekân sabiteleri' kavramsallaştırmalarının sağladığı kapsayıcı yaklaşımla liberalizm üzerine devam eden tartışmalara katkı sunuyor.

Yukarıda verilen amaca ulaşmak için, tanımlayıcı ve bilinen eşitsizlik endekslerinin yanında, klasik ve mekânsal yakınsama modelleri NUTS düzey 2 bölgeleri ölçeğinde uygulanmıştır. Ek olarak, bu analizler gelirin kesitsel dağılımının analizine olanak veren bölüşüm dinamikleri yöntemi ile tamamlanmıştır. Analizler sonucunda bir yandan Türkiye'de bölgeler arasında yavaş bir yakınsamanın var olduğu belirlenmiş; öte yandan, üç gelir grubu arasındaki farka dayanan dikkate değer bir kutuplaşma sorunu olduğu ortaya çıkarılmıştır. Sonuçlar liberal politikaların eşitsiz gelişme sorununa kalıcı bir çözüm üretemediğini göstermektedir. Sonuç olarak, bölgesel eşitsizliğin giderilmemesinin önemli bir politika sorunu olduğu ve bunu yapmak için ekonomik stratejilerin mekânsal politikaları dikkate alarak belirlenmesi gerektiğini ortaya konmuştur.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Uneven development is endemic to capitalism as a historical-geographical system.
(*Smith, 1984*)

The objective of this dissertation is two-fold: first, to elaborate on and discuss the immanent relationships between spatial uneven development and liberalisation in the case of Turkey; and second, to contribute to the critique of liberal rhetoric through the revision of mainstream/dominant approaches by, per contra, drawing on the principles of political economy.

Although there is plenty of academic work on the relationship between liberalisation and geographical development, this issue has not been considered critically and has not been elaborated on adequately in the case of Turkey. Uneven development is an inextricably complex issue (i.e. not only socioeconomically but also spatially) and the debate on unevenness cannot be separated from its geographical dimension; however, regional analyses – not only mainstream approaches but also critical ones – have not been conducted in a sufficient manner. This is connected to a common phenomenon: the *'trivialisation of uneven development'*, which has been a notable matter of fact since the last quarter of the 20th century. On the one hand, uneven development has historically been a hallmark of capitalist geography; on the other hand, the studies focusing on geographical uneven development have started to be considered irrelevant. Uneven development has been trivialised and deemphasised in the related literature. This trivialisation was mostly supported by a common motto: *"*everything develops unevenly*"* (Smith, 1991). At the beginning of the 21st century, interest in the studies on regional disparities rose. However, these studies further focus on the nature of the capital with an emphasis on its connection to geography, with elements such as the agglomeration of capital, the concentration of industries in specific localities, as well as regional economic potentials, competitiveness, fast-growing clusters and so on. These studies indirectly contributed to the debate on regional uneven development, but fundamentally align with mainstream growth theories and their pragmatic requirements at the implementation

level. These works centred on specific niche themes related to uneven development but did not put the issue of inequality at the core of academic or policy concerns.

1.1. Subject Matters

The idea of ***economic liberalism*** has theoretically existed since the end of the 18th century. It has been in practice since the 19th century after the lowering of custom tariffs. Starting in the early 20th century, liberalism and market-led social regulations have been promoted systematically by governments and international regulators, as well as by mainstream policy viewpoints. However, this promotion could not achieve a successful and continuous progress in the history of liberalism. Following the different socio-political forms on a global scale, different regimes of capital accumulation and modes of regulation took place and the history of liberalisation shifted through different approaches (e.g. state-based protectionism after World War II, Keynesianism during the Cold War, developmentalism particularly in Third World countries and so on). Eventually, the breakdown of the Bretton Woods system clearly became a starting point for the real resurgence of economic liberalism. Although it was not a unique process globally, the shift from state-based inward-oriented policies to free-market-based export-oriented economic liberalism took place in different countries, in different ways and at different times (Quiggin, 2005). Together with a strong engagement to market/trade-based policies, open tariffs to promote international trade, microeconomic reforms and financial deregulation for the establishment of competitive market and theoretically minimised governmental interference in market policies have always accompanied the rhetoric of idealised economic liberalisation. The rhetorical strategy of economic liberalism turned into a political ideology in the early 1980s and raised a flourished concept of ***neoliberalism***. On the one hand, neoliberalism fully relies on the principles of economic liberalism (e.g. the removal of foreign trade limits; open, competitive and unregulated markets; and limited role of the state in domestic economy); on the other hand, it enhances liberalisation project through all the domains of capital accumulation, i.e. production, consumption, trade, governance, labour, spatial organisations and institutional structure. Furthermore, owing to the advantage brought by the debt crisis of the early 1980s,

neoliberal programmes applied globally by means of the Bretton Woods institutions[1]. In the end, neoliberalism became a dominant political and ideological form of capitalist globalisation by the mid-1980s although economic implementations remain an open debate.

Neoliberalism is a theory of political economy practices that is a combination of neoclassical economic fundamentalism, market-led and individual-centrist societal formations, moral authoritarianism, free trade and supply-side economics. Correspondingly, neoliberalism is a polyvalent discourse having political, economic and ideological aspects. Considering the difficulties to understand this broad scope, the concept of ***actually existed neoliberalism*** offers an efficient comprehension (Brenner and Theodore 2002). Firstly, the concept successfully explains why neoliberal project continuously fails. Given its dependency on the existing socioeconomic, spatial and institutional environments, conflicts and failures take place following the contradictions between 'actually existed' and 'desired' components of capital accumulation. Secondly, the concept offers a comprehensive understanding how neoliberalisation can be accompanied with various political forms, different implementations, numerous institutional and spatial structures as the fact that different forms can be absorbed by neoliberalisation as far as they can be aligned with the needs of capital accumulation.

The second domain of the subject, regional development, is also a complex issue connected to different viewpoints and theories. In general terms, neoliberalism retains neoclassical fundamentalism. Main hypothesis of the neoclassical growth theory in terms of regional development, a.k.a. ***convergence hypothesis,*** asserts that regional disparities would close over time in the case of relying the open market conditions and regulations. Uneven development, from the viewpoint of the neoclassical approach, is not a structural problem but it is rather a temporary result of the changes in the relationships of capital, labour and technology. Therefore, regional disparities always disappear over time when the market achieves its perfect equilibrium. However, as mentioned above, actually existed neoliberalism has a flexible structure to adapt and get combined with different policies. This can also be seen in the evolution of neoliberal regional policies. Neoclassical growth theory has been combined with different approaches, particularly a post-Keynesian approach called the ***endogenous growth theory***, as well as the ***new***

[1] The institutions established after the Second World War to reorganise the economy of the post-war world, that is, the World Bank (WB), the International Monetary Fund (IMF) and the General Agreement on Tariffs and Trade (GATT) – aka the World Trade Organization (WTO).

economic geography (NEG). Today's neoliberalism approaches to the issue of regional development with this combined (even eclectic) policies.

At this point, the neo/post-Marxian studies, classified under the ***political economy*** perspective, can be seen as a key to theorise connections between actually existing neoliberalism and its regional policy with particular reference to the *spatio-temporal fixes* (Harvey, 1982 and 2006): each regime of accumulation triggers deregulations of existing modes following economic crisis and constitutes a new set of spatial practices to address raising needs of capital accumulation. Deregulations of socioeconomic components in relation to neoliberalisation and new spatial forms of capital accumulation process indeed are hand-to-hand and parts of temporal and spatial requirements of capital accumulation. Therefore, emerging spatial configurations are temporal requirements of capital accumulation. As capital accumulation is not a continuously successful process, capitalism is impelled to seek a spatial fix in a savage way in which capital accumulation creates different forms of spatialities while annihilating (and rescaling) some others. This fundamental contradiction between fixity and movement has a notable presence within the historical geography of capitalism and underpins the production of geographical uneven development in many ways.

The two concepts, *spatio-temporal fixes* and *actually exiting neoliberalism*, are central in order to understand why neoliberalism is always aligned with chronically unstable geographies and spatial unevenness. Market failures, disappearing and rising production centres, constantly changing labour markets, emerging governance structures, increasing socioeconomic inequality and spatial uneven development can be seen as results of contradictions in the process of capital accumulation and its search of spatio-temporal fixes.

1.2. Study Area and Research Questions

Liberal reforms were put into practice in almost all the first and third world countries under the supervision of the Bretton Woods institutions in the late 1970s and early 1980s. These reforms had strong similarities since the main objective was to launch a radical transformation, from import substitution under state direction to export oriented open-market conditions. Moreover, the liberal programmes were centred around a package of policy objectives, namely, the liberalisation of capital flows, the deregulation

of the labour markets, the integration of financial capitalism and the expansion of international trade. Also, these reforms resulted a sharp withdrawal of the states' role in production processes and foreign trade, as well as a significant number of responsibilities aligned with the concept of welfare state, such as equal opportunity for everyone or equal distribution of wealth.

Turkey has followed a similar type of route. With the implementation of the Stabilisation and Structural Adjustment Program (SSAP) in 1980, economic, political, institutional and spatial structures in Turkey drastically changed. In the 1980s and 1990s, systematic deregulations in the national economy were pioneered. The shift in economic policies towards market-oriented strategies was followed by deregulations serving open-market goals. The liberalisation policies primarily aimed to reduce the role of the nation-state in manufacturing, as well as establish more open international trade, re-establish open-market conditions and deregulate the labour market towards a more flexible structure. Aligned with export-oriented industrialisation, important financial and trade measures started to be applied during the 1980s and 1990s, such as the liberalisation of the capital account, the integration of financial capitalism, joining the Custom Union, fastened privatisations and so on.

Since the global imposition of neoliberalism has been highly uneven, both socially and geographically, liberalisation in Turkey resulted in a similarly uneven outcome in terms of income distribution. In comparison with the other countries having the transition towards neoliberalism, the level of inequality between social classes in Turkey is positioned between low-inequality East Asian countries and high-inequality Latin American countries, at a point that is much closer to the second group (Senses, 2016).

In spite of the intensive transitional implementations initiated in the early 1980s, real progress began in the mid-1990s and continued into the 21st century. Early interventions did not come close to launching structural changes, particularly in the manufacturing industries. Following the 2001 crisis that literally unsettled the national economy, Turkey started to attract significant capital inflows following the shift in the mode of capital accumulation at a global level; consequently, a structural change in the pattern of production took place by means of these inflows, which resulted in the domination of the service and finance industries and a notable decrease in agricultural production. In addition, this service-dominated structure led to a very fragile economy organised around low-productivity and low-wage activities (Boratav, 2015). Moreover, the structural reforms that took place in the early 21st century removed barriers to

domestic and global capital flows, which brought about a short-term economic leap. However, more importantly, '*accumulation by dispossession'* started during this period, and not only the process of capital accumulation but also the structure of capital owners changed in the country through the privatisation, financialisation and redistribution of state assets. On the one hand, public spending on services like education, health care and social security was drastically cut; on the other hand, wealth and income were redistributed through tax reforms, special incentives, public procurement procedures and direct state support to specific business groups. Balkan et al. (2015, 2) expresses these transformations in the following way: "Turkey had completed its transition from a mode of capital accumulation driven by import-substituting industrialisation to a regime based on global flows of goods and capital, popularly known as neoliberalism". Furthermore, following a reduction in the allocation of subsidies to specific industries and of incentives to less developed regions, the spatial distribution of economic activities and the spatial uneven development that had been inherited from the previous periods still prevailed; this issue needs to be looked at in more depth in the academic literature.

Turkish liberalisation, in a similar way to other examples all over the world, has been interrupted several times, mostly by economic crisis, and re-established at an accelerated rate following each crisis. Meanwhile, it has unique forms and characteristics aligned with the structures of production and capital accumulation established in earlier times; although this seems incoherent in terms of the general expectations of liberal reforms, it actually fits the concept of actually existing neoliberalism very well. Once again in a similar way to other examples throughout the world, liberal programmes have the flexibility to combine and amend different instruments at a given time to overcome or postpone market failures and critical issues. This thesis intends to elaborate on the structure of liberalisations through spatio-temporal fixes, which requires a specific definition of the temporal and spatial fixes of Turkey. Therefore, temporal fixes are derived from Boratav's works (2008 and 2015), as he applies a critical political economy methodology to the economic history of Turkey and identifies the shifting points of capital accumulation that hypothetically correspond to the changes in the temporal dimension of spatio-temporal fixes as each breaking point also matches a crisis and/or recessions. Hence, the liberalisation of the Turkish economy can be defined in five parts (Boratav 2008, 145-206):

- *1980-1988*: represented by liberalisation under the military regime and the structural programmes;

- *1989-1994*: represented by a strengthened open economy, as well as the populist policies;
- *1995-2001*: represented by the domination of international finance capital and a re-regulated monetary and banking system;
- *2002-2007*: represented by the domination of the IMF in economic policies and the establishment of counter-hegemony through institutional restructuring, as well as being the starting point for accumulation by dispossession;
- *2008-...*: represented by conservative neoliberalism (neo-con liberalism), accumulation by dispossession and the decentralisation of capital.

It should be noted herein that defining the spatial fixes is not as easy as defining the temporal fixes. Indeed, the former is very challenging due to a lack of place-specific data. On the one hand, one of the given spatial units based on the available data must be used, but on the other hand, there is a specific advantage thanks to the adaptation of regional units of Turkey to the EU territorial model. In this process, Turkey started to use the three levels of Nomenclature of Territorial Units for Statistics (NUTS). Moreover, regional policy instruments started to be designed according to these regions, particularly NUTS Level 2, with special emphasis on the objective of regional convergence (Ozturk, 2009). These regions are further defined based on their common development problems and socioeconomic similarities (TUIK, 2010). Finally, following the overlapping policy context and the objectives of these regional definitions, NUTS Level 2 are used for the analysis carried out in this thesis and provide fruitful ground for measuring the level of regional uneven development and gaining insights into the spatial fixes of capital accumulation.

To this end, quantitative analyses are applied and an investigation undertaken to determine whether liberal policies reduce these regional disparities or increase them to a polarised degree, with two different viewpoints supporting each of the two hypotheses. On the one hand, mainstream approaches (e.g. neoclassical approaches, endogenous growth theory, NEG and so on) continue to deliver a central message asserting that market liberalisation increases the efficiency and equality of wealth distribution; on the other hand, critical approaches from the political economy perspective point at liberalism as the reason for deepened uneven development. While the historical evolution of regional uneven development in Turkey is being analysed, with emphasis on the measurement of

the spatial impact, the connections between spatio-temporal fixes and regional uneven development in relation to liberalisation policies are revealed and a theoretical contribution is provided at this juncture. Thus, the following research questions are addressed in this thesis.

- Have liberal economic programmes removed the spatial/regional differences, as mainstream approaches assert?
- Have liberal policies irreversibly deepened the problem of unevenness, as critical approaches assert?
- Should regional inequality and regional polarisation be serious policy concerns in Turkey?
- What is the best way to comprehend and explain regional inequality in a given time and space? Can an approach based on the spatio-temporal fixes be helpful for this exercise?
- Has the regional structure/pattern in Turkey changed in the post-1980s liberalisation period in parallel with the changes in the mode of capital accumulation? If so, how have these changes taken place? Which characteristics and factors have been effective regarding the increase/decrease in regional disparities?
- How can we reveal the connections between capital accumulation, required spatio-temporal fixes and the consequences of actually existing neoliberalism in the case of Turkey?
- What would be the policy recommendations necessary to achieve an efficient economic growth model aligned with a decrease in regional disparities?

1.3. Data Collection, Analysis and Techniques

This thesis tests the main assumptions of the mainstream liberal viewpoint, which capitalises on the neoclassical growth theory, by using its techniques; namely, those based on the convergence hypothesis. However, alternative techniques are also applied in order to elaborate on the viewpoint of critical approaches. To this end, the convergence analysis is completed through the distribution dynamics approach by using the kernel density estimation.

The compiled, converted and calculated data used in the empirical analyses were gathered from the Turkish Statistical Institute (TUIK), the State Planning Organisation (SPO), the Banks Association of Turkey (TBB), the Privatization Administration of Turkey and the study carried out by Karaca (2004). Quantitative regional analyses are applied to the subperiods of Turkish liberalisation, namely, 1980-1988, 1989-1994, 1995-2001, 2002-2007 and 2008-2018, all at NUTS Level 2. However, the last two periods are merged and extended as a period from 2002 to 2018, since there is a gap in the early years of the 21st century.

In order to measure the regional uneven development, besides descriptive statistics, the well-known inequality indices are used, which are Relative Mean Deviation, Coefficient of Variation, Max-Min Ratio and GINI. Subsequently, non-conditional convergence analyses (σ-convergence and β-convergence), as well as conditional β-convergence analysis (using population, savings, public investments, export-import ratio and energy/electricity consumption), are applied in order to test their impacts on territorial convergence. Then, spatial β-convergence models are applied once again at NUTS Level 2 in order to evaluate whether there is a spatial impact on the convergence tendencies. The spatial models are tested through a model selection, which is known as the Anselin procedure, and selected models are run to analyse convergence trends, as well as the spatial impact between the NUTS level 2 regions. These models are the Spatial Autoregressive Model (SAR) and the Spatial Error Model (SEM). The panel-data regression with fixed effect is applied to all β-convergence models. Finally, the distribution dynamics approach is applied for the same periods at NUTS Level 2. This approach is based on the kernel density estimation and provides very fruitful outcomes in relation to the structure of regional disparities, convergence and polarisation tendencies.

The thesis consists of five chapters. Following this introductory chapter, chapter two is centred around the debates on regional development. It begins with a section on the regional issue, in which a brief history of region-based works is provided. The chapter then offers a literature review of growth theories and their assumptions of spatial uneven development, in which mainstream and critical viewpoints are summarised.

Chapter three starts with a review of economic liberalism and neoliberalism, as well as actually existing neoliberalism, which is one of the theoretical bases of this thesis. This review of liberalism is directly followed by the history of liberalisation in Turkey. In this way, the chapter provides a comprehensive understanding of Turkish liberalisation, as well as a detailed review of the periodisation of Turkish liberalisation.

Chapter 4 contains the abovementioned empirical analyses, namely, indices and coefficients measuring the regional uneven development, classical and spatial econometric analyses and kernel density estimations. The main findings of each analysis are also provided in this chapter. Finally, the thesis concludes with the conclusions chapter.

CHAPTER 2

DEBATES ON ECONOMIC GROWTH, REGIONAL DEVELOPMENT & INEQUALITY

This chapter provides a literature review regarding the regional question; economic growth and uneven development. It begins with a brief review on the regional question, subject matters of the regional studies, as well as listing mainstream and critical approaches. It also explores how and to what extent the unevenness problem takes place in these studies. Finally, the chapter offers a detailed overview on the economic growth theories in the domains of economics with emphasis on the literatures of regional economics and economic geography.

The locational theories (Von Thünen Model, Weberian Model and Central-Place Theory), regional economics and radical/critical approaches are also summarised in this chapter. In addition, the new economic geography that correlates economic growth and uneven development issue with the physical features. The Elizondo-Krugman hypothesis and Myrdal-Hirschman hypothesis – both establish a direct relation between the intra-regional unevenness and liberalisation of the international trade from different viewpoints – are taken into consideration. Lastly, together with the brief overview on the world-system theory, the chapter ends with the Marxian political economy approaches which raise radical critiques and comments for the uneven development through emphasises on the capital accumulation, asymmetrical power relations, class relations and spatial division of labour.

2.1. On the Regional Question: Research Subjects, Tendencies and Uneven Development

The concept of *region*, as a research subject, became prominent in the literature of economics and planning in the 1950s-60s. Despite the fact that analytical works at regional level lost their popularity in planning studies during the 1970s by the reason of

emerging need of urban planning in parallel with the rapid urbanisation, interest in regional studies in academic discussions once again started to rise in the 1990s (Roberts and Baker 2006). Following another breakdown in the beginning of the 21st century, the concept of region gained its reputation once more and turned to be one of the most emphasised economic unit in the second half of 2010s particularly in Europe.

From the 1950s to 2010s, the concept of region had a fluctuating role in academic writings that is clearly related to economic, political and social structures. For example, in the 1950s, regions had a broader meaning in the establishment of post-war 'nation-states' rather than being just a geographical unit. Hence, regions had an important role in industrialisation, institutionalisation and development of nation-states. In the following period when the Cold War rules were still valid, regions were considered significantly important planning unit in order to consolidate economic and social lives, as well as political restructuring. Following the popularity of development economics, specific public programmes addressing the problems of less-developed regions and countries were introduced in the 1960s. In the 1970s and 1980s, a series of changes took place. The Cold War ended and the restructuring of the welfare states began. Therefore, a 'new' concept on the region was emerged, which was based on competitiveness, transnational connections, economic capacity, networking, innovation, knowledge economy and so on (Allmendinger 2001; Scott 2008). Hence, studies on regions and regional development have been backed into the research agendas, which consequently reflects on the critical studies. Regional development started to be considered not only an issue of economic growth, but also an issue of equity owing to the fact that capitalist development exhibits a significant degree of regional disparities (Capello and Nijkamp 2009).

The fluctuating role of regions in academic writings from 1950s to 2010s can also be explained in a technical way rather than socio-economic viewpoints. Coulombe and Lee (1995) offer a comprehensive explanation from an academic point of view with regards to three dimensions: firstly, the need for regional research has increased after establishing new economic growth theories and increasing interest in place-based and bottom-up approaches in social sciences. Secondly, development and inequality have again become popular subjects after the emergence of new regional integration projects of the political agendas such as the European Union (EU), the Region of Europe and the North American Free Trade Agreement (NAFTA). And thirdly, regional data collection has changed because of emerging survey techniques and big-data monitoring systems. Therefore, the possibility for empirical studies has been enlarged (Coulombe and Lee

1995; Steinberg 1997). Eventually, the concept *region* has become an important research domain for social science, as well as planning disciplines. For example, a regional specialisation approach has been introduced as ex-ante conditionality for the EU Member States since 2007 and economic programmes have been adapted to the reginal levels (Foray and Goenaga, 2013). Indeed, recent development programmes in contemporary Europe are designed to address regional strategies rather than national strategies.

Peet and Thrift (1989), from a complementary point of view, state that an increasing emphasis on the region in academic writings is related to new approaches, particularly political-economy models that often took their original inspiration from the neo-Marxian approaches. A set of new models based on a political economy perspective emerged in the literatures of geography, economics and planning after the beginning of the 1980s. These models have opened new ways to undertake regional analyses in relation to some untraditional components such as class, culture, gentrification, geopolitics, restructuring, accumulation, specialisation etc. These new political economy approaches influence the research subjects in three ways (Peet and Thrift 1989; 112).

1. Attention should be paid to the quality of work that the political economy models have generated: a variety of theoretical and empirical works have been presented, ranging all the way from class to culture, from gentrification to geopolitics and from restructuring to the urban-rural shift.
2. The political-economy models move outside narrow disciplinary boundaries and influence other disciplines. Geographers and planners have explicitly participated in certain debates in social science (e.g. realism, structuration theory, deindustrialisation and regional restructuring). Consequently, research in the field of spatial science is held in higher regard in social science.
3. The political-economy models evidently contribute through the critical approach to society and create options for practical intervention (especially regarding the debate on inequality in the world, as millions of people live in acute poverty). It holds on to that emancipatory vision.

From the point of view of the third numbered item above, in the last quarter of the twentieth century where the region as a research object gained importance, significant changes took place in the fields of political-economy and critical geography. One of the most noticeable of all those changes was the '*trivialization of uneven development*'

(Smith 1991). Even though uneven development is the hallmark of capitalist geography, the studies centred on inequality were considered *irrelevant*; therefore, they had been trivialized and deemphasized in the related literatures. This trivialization was mostly supported by a common motto: *everything develops unevenly* (Smith 1991). In these years, on the one hand, research topics at regional level centred on the new concepts such as clusters, industrial/techno parks, learning regions, knowledge transfer and so on; on the other hand, studies focusing on the even development, measuring unevenness, addressing regional disparities, exploring dependency relations and hierarchical settlements systems and similar issues clearly lost their popularity at the end of 20th century (Amin and Thrift, 2000).

In the beginning of the 21st century, there was relatively more interest in the studies connected to the uneven development and the nature of capital with its connection to geography; such as, *accumulation, agglomeration*, *concentration* or *specialisation* of capital and/or space (Krieger-Boden and Traistaru-Siedschlag 2008). On the one hand, those areas are somehow related to uneven development as they represent different levels of development. On the other hand, discussions on spatial agglomeration, concentration or specialisation naturally do not have to be connected to uneven development and its rationales or consequences. Most of the studies were indeed centred on the new (and popular) areas, e.g. exploiting the regional potentials for competitiveness, accelerating the global integration, establishing fast-growing clusters etc. (Malmberg 2004). These new domains led to a shift towards more implementation-based more pragmatic research. Consequently, evidence-based revealing models have become predominant in the related fields with emphasis on the analysis of the complex systems of regions. Industrial specialisation, endogenous growth factors, central location, production factor endowment, technological progress and knowledge creation are alternatively emphasised in the academic agenda.

Uneven development among regions has been a contradictive topic for both policy-makers and researchers. Theories spread out in a large variety from more realistic theoretical approaches to models defining complex systems or dynamic economic interactions. Following the shift from exogenous theories to endogenous theories, theoretical discussions have shifted to more practical (even pragmatic) approaches (Capello and Nijkamp, 2009). This has clearly aligned with the rise of target-oriented and revealing econometric models. In parallel, analyses focusing on the complex systems of regions with emphasis on the specialisation, exploiting growth opportunities (e.g.

production factor endowment), technological progress and knowledge creation are covered significant area in the literature.

Regional studies were predominantly directed by neoclassical economics. During the last four decades, newer approaches have been introduced while number of moderationist and critical approaches have increased. At the same time, technology-based approaches have got popular in a wide spectrum of disciplines. Following sections of this chapter offer a comprehensive literature review covering these trends and different approaches.

2.2. Growth Theories in Relation to Regional Uneven Development

Economic growth is a popular topic since the early studies of modern Economics, which is presented in the studies from the end of 18th century to early 20th century (e.g. works of Adam Smith, David Ricardo and Thomas Malthus; much later Frank Ramsey, Allyn Young, Frank Knight and Joseph Schumpeter). These classical economists basically emphasise competitiveness of markets, equilibrium dynamics, role of diminishing returns and its relation to the accumulation of capital and characteristics of labour. Meanwhile, these classical works triggered such different approaches and models focusing on different domains in wide spectrum spreading from analysis of monopolies to innovative economies (Barro and Sala-i Martin 1995, 16).

Classical approaches dominated the research area until 1950s. Consequently, the neoclassical tradition became a mainstream approach already in the first half of 20th century, followed by the temporary dominance of Keynesian policies during the 60s and 70s. Based on the different argumentations and disagreements, several critical and moderationist approaches have been established and minor alternative routes have also been formed.

The debate on regional development and regional disparities has played a fluctuant role all over these years in such disciplines including economics, economic geography, regional economics, regional science, human geography, regional policy and planning. This is more likely related to the nature of the concepts *growth* and *development* as those are not easily observable static phenomena but parts of complex space-time dynamics of regions. Capello and Nijkamp (2009) explain this complexity by describing *the growth* as: (i) an empirical phenomenon; (ii) a long-term phenomenon; (iii) a dynamic

phenomenon; (iv) a macro phenomenon; (v) a real increase; moreover, growth also is (i) accelerating social transitions; (ii) changing consumption traditions; (iii) accelerating urbanisation; (iv) developing unequally (inter-sectoral and interregional); (v) increasing social costs.

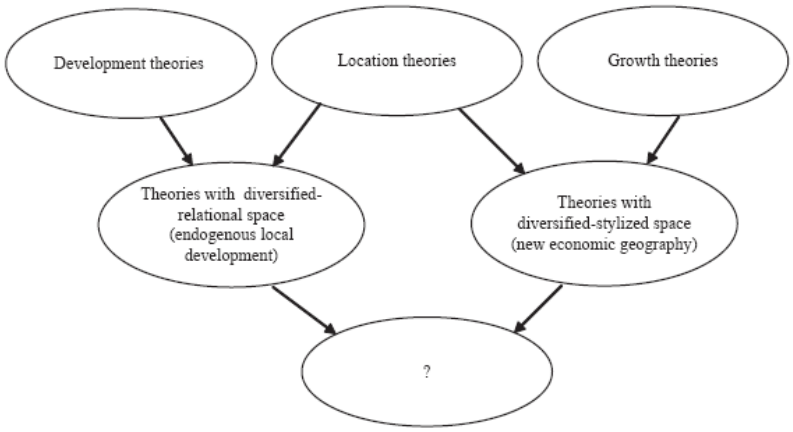


Figure 2.1. Convergence among Theoretical Approaches
(Source: Capello 2009, 44)

Within this complex structure, large groups of theories have been introduced to the large variety of literatures. Capello (2009) highlights that space/place-based theories have theoretically diversified and have constantly re-merged, which actually created a convergent trend (see figure 2.1). A direction of the expected convergence is still ambiguous.

In the following sections, mainstream and critical approaches regarding the growth theories in relation to regional (uneven) development are elaborated.

2.2.1. Neoclassical Growth Theory & Regional Development

Neoclassical growth theories fundamentally focus on economic growth and its interactions to population movements, technological progress and capital investments. Traditional approach is theoretically based on the Solow-Swan Model – also known as *exogenous growth model* – which was developed in the 50s (Solow 1956; Swan 1956). Robert Solow and Trevor Swan elaborate the dynamics of closed economies mainly through econometric techniques. They distinctively recognised that new capital would be more productive than old/vintage capital because the new situation provokes technological development more efficiently. This standpoint was a revolutionary step for

the economic theories as the fact that it offered a new dimension to understand relationships between economic growth, capital, labour and technological changes (Durlauf et al, 2008).

The Solow-Swan model is based on two equations; *production function* and *capital accumulation*. The production function, also known as *neoclassical production function*, shows how capital is related with output. It is based on the Cobb-Douglas formula and is given by:

$$Y = F(K, L) = K^{\alpha} L^{1-\alpha}$$

Where *K* is capital; *L* is labour and *Y* is outcome. The function intends to explain how output evolves over time in an economy. Also, it offers an understanding how the economy grows and changes over time under specific assumptions (continuous time, constant technology, no governmental intervention, no international trade and given the full employment) (Jones 2008). Model has been welcomed thanks to its novel feature that allows comparing different economies in the long-term. In addition, *constant returns to scale* provide a basic but string comprehension on the production process by asserting: if all of the inputs are doubled, outputs will be exactly double.

Neoclassical approaches assume that perfect competition always prevails in economy. As companies are totally engaged to profit maximisation, they employ labours as much as the marginal product of labour reaches equal to the average wage. In addition, they would rent capital until where the marginal product of capital is equal to the rental price. The Solow-Swan model simply follows this hypothesis and offers 'more capital per worker' as it would trigger an increase in output per worker, as well as productivity. It should be noted that the model always takes into account the diminishing return to capital (Jones 2008; Barro and Sala-i Martin 1995).

Together with production function, capital accumulation equation lies behind the Solow-Swan model. The equation is given below:

$$\dot{K} = sY - dK$$

Where $\dot{K}$ is the change in the capital stock, sY is the amount of gross investment and dK is the amount of depreciation that occurs during the production process (Jones 2008). The equation above shows that the capital stock is equal to the gross investment if

there is no depreciation under the assumptions of *constant saving rate*. Likewise, investment per worker increases while depreciation per worker reduces. If there were no new investment and no depreciation, capital per worker would decline because of the increase in the labour force (Solow 1959).

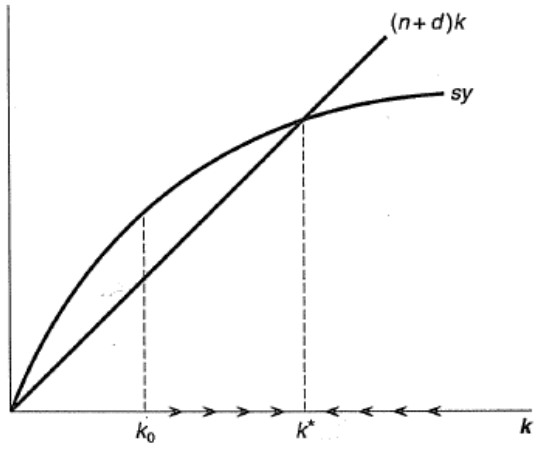


Figure 2.2. The Solow Diagram
(Source: Jones 2008, 25)

Fundamental questions of the neoclassical approach in relation to economic growth are two-fold: how output per worker evolves over time and how the economy grows? The Solow Diagram can be used to answer these questions (Fig. 2.2). This diagram combines neoclassical production function and capital accumulation equation. The Solow diagram includes two curves: first one is the amount of investment per worker (*sy*), which exactly has the same shape of the neoclassical production function if it is plotted. The second curve is the *(n+d)k* line – so-called *the break-even investment* – that represents the amount of investment which is necessary per worker to keep the amount of capital per worker constant. Implications of the Solow diagram are simple: growth is stopped in the long term if economies have the same n (population growth), s (savings rate), and d (capital depreciation rate), which implies that these economies have the same steady-state; therefore, they will converge. Moreover, difference between both curves is equal to the change of the amount of capital per worker; Capital deepening in economy is confirmed if this change is positive. Given the situation of capital deepening, *k* would rise up over time. This increase can continue till $k = k^*$, where is $sy = (n+d)k$. This point, when the amount of capital per worker remains constant, is called *a steady-state* (Jones 2008).

The Solow-diagram also represents how original neoclassical approach comprehends development. Following the fundamental neoclassical assumptions, having high saving/investment rates accumulates more capital per worker; therefore, it creates more output per worker; and as a result, tends to become richer. On the contrary, high population growth rates reduce the amount of capital per worker; hence, economy is likely to become poorer (Maier and Trippl, 2009). The model asserts that an economy can grow only aligned with the rate of population growth in the steady-state because output per worker is always constant. Likewise, stock of capital per labour tends to its steady-state value; and economic growth stops at this point (Jones 2008).

Neoliberal approach more focused on three dimensions of economic growth: technology, capital stocks and productivity since the 1950s where it was assumed that an economy exogenously gets more productive over time and only depended to technological progress (Sala-i Martin 1994). However, this not only relies unavoidable technological progress over time, but also assumes homogenously equal distribution of technology over space. In other words, as the fact that technology always develops over time, labours exogenously get more productive, which is also called *the exogenous productivity growth rate* (Barro and Sala-i Martin 1995). Thus, accessing steady-state assures two improvements; increasing capital in parallel with population increase and more productive labour forces based on technological progress (Greene 2003). Starting from this point, the Solow-Swan model utilises capital-technology and output-technology ratios to explain the differences between the growth rates of economies and territories (Jones 2008).[2]

To sum up, the Solow-Swan model lies behind the neoclassical growth theory and relies on the following principles (Jones 2008):

- If an economy increases the investments with a lower population growth, capital per worker would also increases. This positively reflects to labour productivity; and therefore, economy grows faster.
- Technological progress can compensate the negative tendency of marginal production. While capital is accumulated, growth converges towards the level

[2] The ratios are calculated by;

$$\tilde{k} = \frac{k}{A} \quad \text{and,} \quad \tilde{y} = \frac{y}{A}$$

Where A is the technology variable; *k is the capital;* $\tilde{k}$ is the capital-technology ratio; and y is the output; $\tilde{y}$ is the output-technology ratio.

of technological progress. Consequently, labours would become more productive because of technological progress and supplementary increase in capital accumulation.

- If the capital-technology ratio is relatively lower, an economy grows faster until this ratio reaches its steady-state level. Similarly, an economy with increasing investment grows rapidly until it reaches higher output-technology ratio.

Unevenness, according to neoclassical approach, does not take place on account of structural problems, but it is a temporary result of investments and population changes in case where there is a perfect competition market. Hence, regional disparities would disappear over time after reaching an economic balance following the convergence of surplus value and profit rate. Therefore, uneven development just disappears when market achieves the perfect equilibrium, which leads to another conjecture, *convergence hypothesis*.

2.2.1.1 Convergence Hypothesis

Following one of the main assumptions of the Swan-Solow growth model where claiming that market mechanism would remove regional disparities by itself, the model simply asserts that economic growth and uneven development are directly connected to the nature of production components, namely; capital, productivity, technology, labour (human resources) and so on. In this way, the Swan-Solow model considers uneven development as a temporary issue rather than a structural problem. Successive model, *the convergence hypothesis* similarly asserts that regional unevenness will be removed in the cases of relying on the open-market conditions, liberalisation of foreign trade and conducting market regulations continuously. Additionally, the hypothesis is fully centred around the liberal market assumptions where open market could (1) reduce the regional disparities, (2) assist in relocation of industries toward outer and economically lagging regions, and (3) reduce the population in overpopulated cities while closing the gaps between regions (Krugman and Elizondo, 1996).

The convergence hypothesis is based on the following argument: "an economy that starts out proportionately further below its own steady-state position tends to grow

faster... that is, poor economies tend to grow faster than rich ones" (Barro and Sala-i Martin 1995, 382). According to this hypothesis, growth of income is negatively related to its starting level while all else is constant. In the last instance, the only provision for convergence is to achieve and keep open-market conditions. Regarding the hypothesis, relatively lower starting level of income with respect to the steady-state position has faster growth in marginal productivity, which is also known as diminishing returns to capital. Economies with lack of capital are apt to higher rates of return, as well as higher growth rate. Moreover, positive rates of growth can sustain over a century or more (Sala-i Martin, 1994). Therefore, convergence approach assumes that a less-developed economy tends to grow faster than an advanced one. In addition, independent from their technological levels and institutional capacities, less-developed economies would solve spatial disparities faster than richer territories as companies and individuals in a territory are disposed to achieve at the same level of development. This is called absolute convergence that is more likely to apply across regions within countries than across countries (Barro and Sala-i Martin 1995).

In detail, unique circumstance of convergence is to trust in free market (Borts and Stein 1964; Williamson 1965; Alonso 1980; Barro and Sala-i Martin 1995). If a less-developed economy grows faster regardless of their eventual steady-state position, it is called *absolute (or unconditional) convergence*. In other respect, if economies have similar steady-state levels, it is called *conditional convergence* where mechanisms of free market allocate inputs and outputs equally. Eventually, the hypothesis asserts that only market interventions can damage this perfect system and its tendency to growth equally as assumed that open economies facilitate capital and labour movements and create faster convergence.

Empirically, both abovementioned concepts of convergence are modelled in the literature (for the econometric details, please see section 4.4). In the first view, convergence applies if an underdeveloped economy is apt to grow faster than developed one. This corresponds to the concept of *β-convergence.* This kind of convergence takes place in the case that there are more homogenous groups of economies. The second concept involves cross-sectional dispersion where convergence takes place when disparities decline over time. This concept is called *σ-convergence.* Convergence of the first kind (underdeveloped economy tending to grow faster than developed ones) tends to

generate convergence of the second kind (reduced disparities of per capita income)[3] (Barro and Sala-i-Martin 1995; Sala-i-Martin 1994).

The empirical model of convergence hypothesis has been tested over many countries and regions. Popularity of the hypothesis is mostly based on the studies made by Sachs and Warner (1995), Islam (1995) and Barrio and Sala-i Martin (1995). Sachs and Warner analysed numerous developed and underdeveloped countries and verified the convergence hypothesis (especially for the cases on post-communist and transitional countries). Meanwhile, Barro and Sala-i Martin tested the hypothesis in developed countries like European and Northern American countries, as well as developed Asian economies. Findings differ broadly but convergence has been more likely observed when long-run time-series data applied.

It should be noted at this point that there are critiques from the inside to this very well-known neoclassical model. Some scholars from the mainstream economics (which is so-called 'post-neoclassical approach' in some sources) simply appeal the absolute convergence. According to this critique, even under the circumstances of fully free and open market, regional divergence can still take place as market powers' movements can be apt to differentiate; therefore, these drifts can lead diverging trend rather than convergence. Martin and Sunley (1998) relate this to the cumulative accumulation of capital, labour, production and services because of the scale economies and nature of spatial agglomeration.

2.2.2. Keynesian Approaches & Regional Development

Keynesian theory is a macroeconomic theory that attempts to understand the relationships between marketplace and monetary policy. According to this theory, aggregate demand for goods, which is constituted by consumer demand and investment demand, is the driving factor of the economy. When the overall level of employment drives the size of national income, it is also driven by aggregate demand (Figure 2.3). In this sense, "the degree of influence of demand on employment and income depends on the economic infrastructure of a country: factors like the organisation of industry, the quantity of capital employed, the amount of foreign trade and governmental fiscal and

[3] Mathematical details of the alpha and beta convergence models are available in this thesis where an empirical work on Turkey's regional unevenness is undertaken (see section 4.4.1).

monetary policies" (Jones 2008, 42). From this standpoint, Keynesians support the governmental intervention in order to overcome the economic recession because demand injection may restore economic growth and regulate economic infrastructure. It also decreases the effects of possible inefficient outcomes of private sectors (Davidson 2009).

Keynes did not provide any model for economic growth, indeed. His analysis focuses on unemployment, recession, inflation and their relations to the domestic production. Some insights, i.e. the link between economic growth and investment expenditures, can be found in his analysis. Keynesian approach aims at achieving the full employment; hence, trying to address economic crises and recessions. As it assumes an economic recession is related to decrease in demands, to overcome an economic recession is only possible with an increase in total demand. After eliminating the effects of the recessions, full employment may be mentioned just in the case of reaching spectacular growth rate. In this way, Keynes implies that economic growth is just a tool in order to reach full employment balance (Peet and Hartwick 2009).

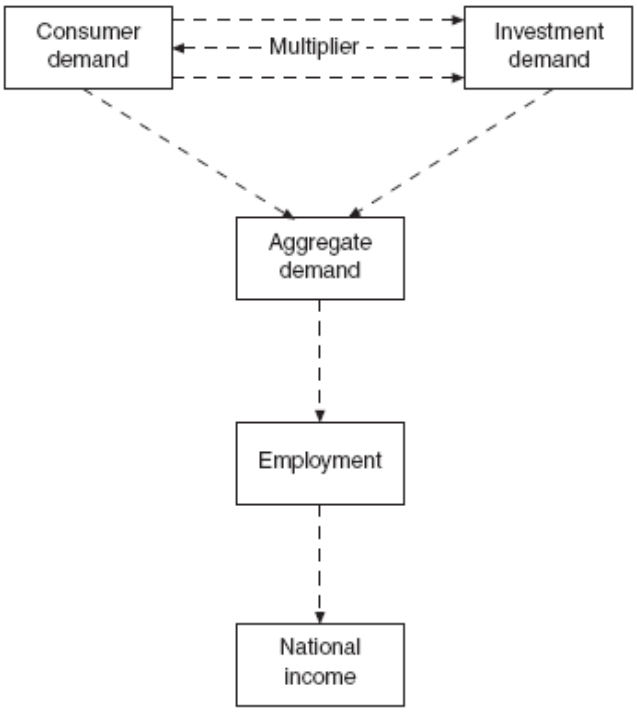


Figure 2.3. Keynesian Model: Aggregate Demand & National Income
(Source: Jones 2008, 43)

According to the Keynesian theory, aggregate demand is affected by public decisions, which derive from public institutions and/or the pressure of private industries. Every type of public decision involves specific monetary and fiscal policies; and, Keynes

shows that both fiscal and monetary policies determine investment and aggregate demand. Changes in aggregate demand create effects on real output and employment. Therefore, monetary policies directly affect output, employment and even investment (Davidson 2009).[4]

2.2.2.1. Cumulative Growth & Derivations

Keynesian models have been applied to the regional studies on economic growth by scholars like Kaldor (1970) and Dixon & Thirlwall (1975). These studies contain the Keynesian argument as a starting point that says 'the capitalist system is naturally unstable'. Therefore, the regional inequality is structurally emerging if governmental intervention is not applied.

Kaldor (1970) shows that the growths in productivity, output and market share create cumulative growth of an economy. From this viewpoint, he developed a Keynesian growth theory that also stylised other theories on economic growth. His findings can be summarised as following: (1) output per capita increases over time and its growth rate does have diminishing trend, (2) capital per worker increases over time, (3) rate of returns to capital is constant, (4) ratio of physical capital to output is constant, (5) shares of labour and physical capital in national income are constant, and (6) growth rate of output per worker differs across countries.

Another Keynesian model, which also departs from the viewpoint of Kaldor, *regional export-led growth* was developed by Dixon and Thirlwall (1975). Kaldor's idea of cumulative growth of productivity, which is connected to the dynamic increasing returns to scale especially in manufacturing industry, is a key point of this model. For Dixon and Thirlwall, productivity depends on the division of labour which in turn depends on the size of market, namely demand. "As the market expands, productivity increases, but the increase in productivity resulting from a larger market in turn enlarges the market for other goods, and this causes productivity in other industries to rise too" (Ciriaci 2005, 1).

[4] It is possible to mention about some brunches of the Keynesian economics such as Underconsumption Theory, Birmingham School, Stockholm School and even Post-Keynesian Theory. Those are not explained in this study because of irrelevancies to regional development (for detailed information, please see Skidelsky 2010; Davidson 2009; Jones 2008).

Kaldor's cumulative approach is re-formulised by Dixon and Thirlwall (1975) in terms of the circle of rising output per worker and productivity in the scope of international trade. High growth rate of manufacturing export causes high growth rates of manufacturing output and productivity. Thus, relatively fast-growing regions tend to attain a cumulative competitive advantage over relatively slow-growing regions. "(This competitive advantage) makes the model circular and cumulative, and gives rise to the possibility that once a region obtains a growth advantage, it will keep it" (Dixon and Thirlwall 1975, 205). This approach is considered important as it provides an explanation in how long-term inequality persists over regions. Also, it points out the international trade as a main reason of unequal development, by means of integrating export values into the model.

2.2.2.2. Myrdal-Hirschman Hypothesis

An important hypothesis that is based on the Keynesian arguments and applied in the area of regional economics is the Myrdal-Hirschman hypothesis (Myrdal 1957 and Hirschman 1958). Gunnar Myrdal and Albert Hirschman tested the relationship between economic liberalisation and regional uneven development. They figured out that early stages of economic growth tend to be characterised by increasing regional disparities; in addition, economic liberalism results in a polarisation effect, which would mostly lead a more rapid growth in developed regions and even increase the interregional inequalities over time. Herein, Hirschman intends to explain how economic growth works and equality is not his main concern. In other words, he simply asserts that real economic growth can only take place in the inequal landscapes. Hirschman (1958), therefore, proposes a model, called "unbalanced growth", which is based on the disequilibria that may facilitate economic growth owing to the leap effect of the selected industries in the specific regions. The key point of the Hirschman's approach would be the role taken by the government as the state is responsible to choose priority industries and regions for acceleration of the unbalanced growth. On the other hand, Myrdal (1957) points out the negative impacts based on stress and disadvantages fostered by the inequal spatial development. He explains this situation with the concept "cumulative causation": any investment and changes in a specific area will cause a cascade of other changes, and that economic improvement in one region implies economic decline in other region(s).

Williamson (1965) appeals this theory through utilising time effect. According to Williamson, regional inequality cumulatively increases in the early stages of industrial development (also see section 2.2.2.3). In the sequent stage, regional populations reach their balance and disperse homogenously because of interregional labour movements. Finally, in the third stage, regional inequality decreases owing to equal distribution of investments and their labour needs.

The Myrdal-Hirschman hypothesis is in sharp contrast to the Elizondo-Krugman hypothesis. Gunnar Myrdal´s (1957) *cumulative causation model* fundamentally asserts that liberalisation of economies would cause the increase in regional disparities where economic development begins in some advantageous place and continues to develop in the same place in further stages. Open-market mainly tends to increase rather than to decrease inequalities between regions. For Myrdal, in the case that governments do not regulate the markets, economic activities such as manufacturing, trade, finance and others would concentrate in the same growing regions (nucleus). Thus, cumulative causations emerge and developed regions exploits the sources of underdeveloped regions (peripheries).

The novelty of Myrdal's work (1957) comes with his comprehensive view. He states that economic factors alone are not adequate to understand inequality phenomenon unless historical, institutional, social and cultural factors are taken into consideration. The proposed role for the governments as market regulators indeed fits very well to his point of view. At the same time, his approach offers a methodology to understand how a developed economy affects the economic relations by means of two opposite forces; *spread effect* and *backwash effect*. Development in one place spreads to its suburbs and neighbouring areas, which is called spread effect. Therefore, spread refers to the positive situation where population, labour-force, job, wealth and knowledge can be transferred to nearby regions. On the other hand, backwash refers to adverse effects such as a withdrawal of skilled labour from underdeveloped regions, as well as capital and goods, of which rush to the dynamic centre of development. Myrdal considers that growth of export de facto fosters the capital and labour movements from less-developed regions to developed ones. Eventually, Myrdal argues this argument with a various factor (e.g. agglomeration economies, factor flows, social environment, public policy etc.) and provides empirical justifications through his analyses on existing cases.

Albert Hirschman (1958) follows the Myrdal´s hypothesis and argues interregional and intraregional inequalities as inevitable concomitant of growth itself. His

two concepts, the *trickle-down effect* and the *polarisation effect,* show strong similarities with the Myrdal's concept of backwash effect. Hirschman considers economic growth as a seesaw process between leading regions and lagging regions. While the open-market tends to force economic activities toward the regions possessing natural sources and infrastructure, economic growth never progress spontaneously and equally. It actually has a tendency to be polarised. Moreover, Hirschman takes a rigid position and clearly claims that there is no solution for the uneven development in the circumstances of polarised economic relations.

The Myrdal-Hirschman hypothesis offers a relatively more evidence-based interpretation of the uneven development compared to the mainstream liberal approaches (Lahtinen 2010). In addition, the hypothesis offers a comprehensive understanding based on the concept of cumulative causation where economic factors are enhanced with several dimensions (e.g. mobilisation of labour-force, capital flows, domestic and international trades, public investments etc.) and where economic factors are also accounted for adverse social phenomena (e.g. social exclusion, racial discrimination, low-level education, poverty and so on). For example, while one pole collects the productive population by means of migration of more ambitious and better trained labours from less-developed regions, less qualified population remain in the less-developed pole. in this context, higher growth rate of population in less-developed areas leads unemployment, low wages and poverty (backwash effect) and therefore remains as lagging poor regions. Similarly, capital movements follow the same path and demand in the final goods and investments concentrate in the developed regions. As better infrastructure traditionally creates new opportunities in the scale economies, financial facilities of the developed regions turn into another noteworthy puller effect for the new investments. Once more, it is notable that considerable number of Keynesian scholars support governmental interventions to avoid this asymmetric development (Lahtinen 2010).

2.2.2.3. Kuznets-Williamson Hypothesis

The Kuznets' hypothesis, which is known as the 'Kuznets Curve', was developed by Simon Kuznets in the 1930s. Afterwards, it was applied to regional studies by Williamson (1965). This hypothesis is well-known comprehension on the regional (uneven) development from the viewpoint of Keynesian principles.

Kuznets gives a *storyline* for the inequality question with emphasis on the nature of the production. According to the hypothesis, economic inequality increases over time if a country develops upward, mostly from labour-intensive economies to industrial economies. After achieving certain average of income, inequality begins to decrease that can be observed in post-industrial economies. Kuznets clarifies his hypothesis through a diagram that is simple inverted-U showing the relationship between inequality and income per capita (figure 2.4). It implies that inequality appears in the very early stages of development process because investments are agglomerate in specific regions or countries at the beginning. Inasmuch as underdeveloped regions in advanced economies have more potential to offer labour force, investments start to move towards underdeveloped regions at a subsequent stage. This would decrease inequality once the economy reaches a certain level of income (Faggian and McCann 2009).

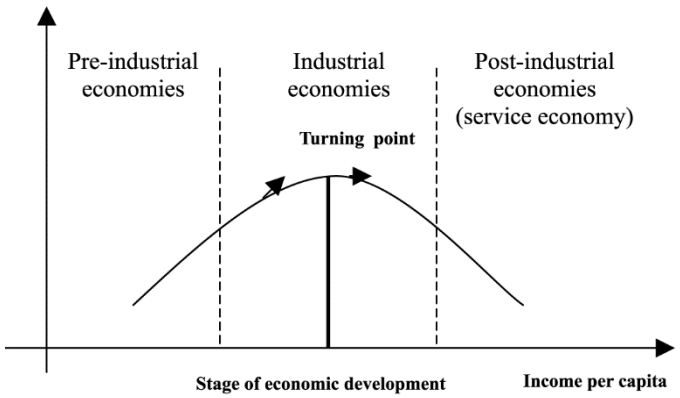


Figure 2.4. Sample of Kuznets' Curve
(Source: Cialani 2003, 570)

Shifts from agriculture to manufacturing and/or services is the main reason for the rapid structural transformations, Kuznets (1981) says. It also triggers rapid urbanisation, increasing employment and increase in high-level education. Eventually, Kuznets aligns his hypothesis with the big structural changes and analyse inequality together with foreign trade and technological development; therefore, he draws a framework that in fact is commonly accepted as a key to the modern studies on economic growth (Kuznets 1981; Alonso 1980; Jones 1997).

Williamson (1965) applies the Kuznets' Curve to the regional studies and justifies thereby a remarkable result that support the Kuznets' hypothesis. According to this hypothesis, regional inequality cumulatively increases in the early stages of industrial development. In the following stage, regional populations reach a homogenous

distribution owing to labour migrations; and then, labour markets find their balances. Finally, in the third stage, regional inequality decreases owing to equal distribution of investments and labour (Williamson 1965). However, Alonso (1980) goes into more depth and appeals the Kuznets-Williamson hypothesis by empirically showing that the Williamson's finding just corresponds to one stage of a five-stage unequal development. The inverted-U is a part of long-term cyclical development, Alonso says. He claims that market regulations or labour migrations do not create an effect in decreasing regional inequality, but contrarily regional inequality permanently increases in the long term.

2.2.3. Endogenous Growth Theory & Regional Uneven Development

At the last quarter of 20th century, growth theories have mainly focused on how technological progress – as well as R&D capacity and innovative activities – affect economic growth. This discussion was not only valid theoretically, but also correct phenomenally. Neoclassical growth theory did not offer an adequate explanation of growth rate differences as the fact that technological dimension was ignored particularly when growth gap between developed and less developed countries were widening, (Obstfeld and Rogoff 1996). At this point, the endogenous growth theory opens new dimensions through aligning technological progress with economic growth and positioning itself in the point significantly different from neoclassical *status-quo*. While technology is an exogenously determined component for the neoclassical theory, the endogenous theory considers technology as a direct determinant of economic growth. It also disapproves the Solow-Swan model due to the fact that technological progress is just taken account in the model as a way to increase output per worker. "The economist Paul Romer countered this by constructing mathematical representations of economies in which technological change is the result of the intentional actions of people, such as in research and development" (Peet and Hartwick 2009, 61).

The endogenous growth theory internalises knowledge and technology as a direct components of economic activities: "it views technological progress as a product of economic activity; and it holds that, unlike physical objects, knowledge and technology are characterised by increasing returns that drive the process of growth" (Peet and Hartwick 2009, 62). The endogenous theory, thanks to comprehensive view involving impacts of knowledge and technology, successfully explains how some economies

sustain successful for long term. The neoclassical theory fails in this point owing to the model's assumption of diminishing marginal productivity. At the end, the technology-based approaches created a breaking point and made the endogenous growth theory popular, not only in the growth/development related research areas but also in policy making (Mankiw 1995).

Endogenous models empirically introduce technological progress as the 'engine of economic growth', which is considered as a main determinant of capital accumulation. Thus, it offers practical tools to measure economic growth by means of knowledge-based models rather than resource-based models: increase in knowledge capacity causes the creation of better goods and services with smaller amount of physical resources. In addition, the model assumes that just technology and innovations can generate sustained economic growth as an alternative to the amounts of savings and investments. Furthermore, the model offers a new role for governments and draws a framework involving public authorities as potential facilitators of new ideas and innovations.

> As the world becomes more and more closely integrated, the feature that will increasingly differentiate one geographic area (city or country) from another will be the quality of public institutions. The most successful areas will be the ones with the most component and effective mechanisms for supporting collective interests, especially in the production of new ideas (Romer 1992, 89)

Above all, most of the mainstream approaches was not adequate to explain the real circumstances of economically diverged regions at the last quarter of 20th century. Hence, contrary and/or complementary hypotheses took significant place in the related literature. Especially Romer's studies (1990, 1992 and 1993) have created a new trend based on endogenous assumptions. This new trend mostly focused the reasons behind the diverged economies and adapted new variables in the empirical models. At the end, Romer, as well as Lucas (1988), starting from neoclassical assumptions and achieved a well-known endogenous growth theory by involving knowledge, technology and human capital, as well as international trade, into their model of economic growth.

2.2.3.1. Common Characteristics and Principles of the Endogenous Models

As it is explained in the previous section, novelty of the endogenous growth theory is the involvement of technological progress into the neoclassical growth theory. The endogenous models commonly integrate knowledge capacity and technology inside the empirical models by defining variables like human capital, research infrastructure, R&D investments, innovation activities etc. This update also changes the structure of production function. While the production function is based on the law of diminishing returns of capital, the endogenous model altered this paradigm and developed a model based on increasing returns of capital. Consequently, this update reflected on the theoretical assumptions of endogenous growth theory (Şiriner and Doğru 2008). From this point of view, the aggregate production function of endogenous approach is written as following (Gunther and Trippl 2009; Barro and Sala-i Martin 1995; Jones 1997):

$$Y = C^{\alpha}(AL_y)^{(1-\alpha)}$$

Where α is between 0 and 1; A is stock of ideas; C is capital stock; L_y is labour; and Y is produce output. Herein, it should be underlined that the function draws an equation that interacts output and knowledge. Similar with the Swan-Solow function, the production function of endogenous approach is based on the Cobb-Douglas formula. For a given level of technology, A, the production function exhibits constant returns to scale in capital (C) and labour (L_y). However, when the ideas (A) are an input into production, there are increasing returns. In other words, capital and labour shows constant structure as the scale and the cost of A is decreasing, which indicates increasing returns to scale (Jones 1997; Şiriner and Doğru 2008; Gunther and Trippl 2009).

The equations of capital and labour are exactly same for the endogenous and Solow-Swan models. Similarly, both assume that labour is equivalent to population and increases exponentially at some constant (Jones 1997). It differs when the stock of labour is being defined. This indicates how knowledge becomes endogenous in the model even though it was exogenous in the neoclassical approach (Gunther and Trippl 2009; Romer 1993):

$$\Delta A = \delta H_A$$

A_t is the stock of knowledge that has been invented over the course of history up until time *t* (it is not exogenous anymore and endogenized to the model); H_A is a number of people attempting to discover new ideas; δ is the rate at which they discover new ideas; ΔA is a number of new ideas that are produced at any given point of time.

Because labour is used either to produce new ideas or output, the stock of social labour-force faces the following resource constraint:

$$L = (H_A + H_Y) + L_Y$$

While H_A is a number of researchers (human capital in R&D); H_Y is a number of labours working in the final goods sector. Herein, the variable of new ideas can be a constant as the stock of ideas may have already been invented. Jones (1997) interprets that invention of ideas in past raises the productivity of researchers in present. In this case, δ would be an increasing function of *A*. Contrarily, the new ideas can be discovered but subsequent steps can be difficult; then, δ would be a decreasing function of *A* (Jones 1997; Romer 1992). This changeable configuration matches the model explaining how new ideas would be introduced.

$$\bar{\delta} = \delta A^{\emptyset}$$

Where δ and $\emptyset$ are constants; (i) if $\emptyset > 0$, it indicates an expansion of positive knowledge (research productivity grows with the stock of ideas that have already been discovered); (ii) if $\emptyset < 0$, it is a state of *fishing out* where it is harder to catch *the fish* (research productivity decreases over time); (iii) if $\emptyset = 0$, obvious ideas were already completed; therefore, old ideas may facilitate the discovery of new ideas (research productivity is independent from the stock of ideas) (Jones 1997).

Within this scope, another important debate is whether research productivity depends on the number of people searching new ideas. The endogenous approach offers an empirical answer for this question. Number of people attempting to discover new ideas (H_A) is transformed to H_A^{λ} where λ is a parameter between 0 and 1. Thus, the general production function can be written as below:

$$\Delta A = \delta H_A^{\lambda}.A^{\varphi}$$

ΔA is a number of new ideas that are produced at any given point of time; A is the stock of knowledge that has been accumulated; H_A is a number of people attempting to discover new ideas; δ is a rate at which they discover new ideas; λ is growth rate of people who attempting to discover new ideas; φ is the spill-over of new ideas.

These abovementioned equations illustrate a very important aspect for modelling economic growth. They provide a tool to analyse different dimensions of economic growth e.g. innovation, productivity, quality of labour force, stock of knowledge and so on Jones (1997, 92).

Following section focuses on the theoretical details and classifications of endogenous growth theory in order to provide a comprehensive review.

2.2.3.2. Classifications in Endogenous Growth Theory

Development of the endogenous growth theory has different domains and each of them corresponds to important contributions to the model that is done by well-known scholars. These domains/models can be summarised within three groups:

1. *Romer Model*: The growth model based *on research and development (R&D)* (recently more focused on *innovation*) facilities (Romer 1990, 1992 and 1993).
2. *Lucas Model*: The growth model based on the *learning by doing* (Lucas 1988).
3. *Grossman-Helpman Model*: The growth model based on the *human capital* (Grossman and Helpman 1990).

The Romer Model indeed lies at the bottom of the endogenous growth theory. Romer was the first scholar integrated technological progress into the empirical analyses of economic growth and considers the accumulation of knowledge as an input for increasing marginal productivity and elaborates the components of trade (e.g. technology, stock of human capital, research facilities, interest rates and so on) as interacted apparatuses (Romer 1990 and 1992). According to him, an economy consists of three sectors: research, intermediate goods and final goods. Contrary to popular approaches, the key factor of economic growth is the research sector, which affects the human capital

positively in terms of cumulative effect of education, training in job activities, stock of knowledge, creation and establishment of new knowledge and innovation.

The Romer Model has created significant influence in economics and the concept economic growth is started to considered in line with the qualified human capital and research and development (R&D). In addition, significant number of researches confirmed the positive influence of R&D on the profit maximisation and economic growth. It is subsequently extended to researches centred on innovation-led growth. Thus, protection of intellectual property, copyright systems, patents etc. become important and in this way management and production of knowledge are regulated (Peet and Hartwick 2009).

Characteristic features of the Romer Model can be summarised as following (Romer 1990; Şiriner and Yılmaz 1998; Peet and Hartwick 2009).

- Economic growth is depended to three industries (research & development, intermediate goods and final goods) while the production process has four inputs (physical capital, human capital, labour and technological level).
- The stock of human capital determines the economic growth rate.
- Large population of production is not adequate to accelerate economic growth.
- Integration to world economy accelerates economic growth.
- Technological progress is a driving factor for economic growth. Technology facilitates the capital accumulation and at one and the same time increases the productivity.
- Technological development always corresponds to the creation of new ideas and potential to commercialise them.
- Knowledge as an input of production has a fix cost. It does not create supplemental cost when it is being used for further stages of production. In parallel, the cost of human capital decreases while technological production increases.
- R&D facilities and creating new ideas are driving factors for long-term sustainable economic growth.

Another important contribution to the endogenous growth theory is based on the Robert Lucas' well-known article, "On the Mechanics of Economic Development". Model in this work, so-called the *Lucas Model*, opens a new path. Lucas's (1988) first

attempt is to explain the reasons lying behind economic divergence among different economies. For this, he simply introduced human capital into the endogenous model as a complementary determinant variable. Lucas additionally focuses upon the stock of knowledge where it is connected to human capital. His inspiring works brought the famous motto "learning by doing" into the research and policy literatures.

According to Lucas (1988), knowledge and technology have direct impact on the human capital. Therefore, not only labour mobility but also collective knowledge of human capital should be taken account in the studies on economic growth. This effect - called learning by doing- also explains how different goods create higher or lower value-added. In addition, Lucas claims that this is the reason lying behind why technically advanced economies always achieve faster growth and how regional disparities get widened between technology-intensive and labour-intensive economies.

The Lucas Model considers the level of technology as the main reason of the unevenness between different economies where disparities appear and sustain following the unequal trade between technologically developed and less-developed economies. the inequality sustains not only because of asymmetric trade relations but also an asymmetric learning by doing effect, Young (1991) says. While technically leading regions can accumulate the stock of knowledge through learning by doing, technically lagging regions cannot reach the critical mass of production providing opportunities for more learnings.

The third model of the endogenous growth theory is the Grossman-Helpman Model, which opened another new dimension for the approach once again based on the R&D capacity. Grossman and Helpman (1990) developed a model enhanced by the dimension of multinational dynamic trade. According to them, an economy is mainly defined by three industries: (i) traditional goods; (ii) R&D based goods; and (iii) R&D itself (where new goods developed).

Grossman and Helpman (1990) assume that growth can be generated by two ways: (i) improved the quality of goods; and (ii) a variety of product range enlarged by means of the R&D activities. Both ways (improving quality and variety of the goods) create comparative advantages in the international trade. These advantages, consequently, turn into driving factors of an economy and accelerate economic growth. In addition, the model takes into account knowledge transfer between regions, particularly from developed regions to less-developed regions. Through providing very efficient understanding on the regional development aligned with the contribution of international trade and impact of technology transfer, Grossman and Helpman define a critical criterion

to sustain long-term growth: producing more value-added goods for open market at international level! International trade and financial markets create scale effects in the growth process and allow to achieve fast growth even for the economies with limited capacity in the case of offering new and/or improved goods and services (Grossman and Helpman, 1990).

Lastly, it should be noted that the endogenous growth theory has created a remarkable impact on the field of policy making and provided methods for regional policy-making. The official regional policy of the European Union (EU) (so-called the 'innovation-led growth' and the 'place-based approach', as well as the 'smart specialisation strategies') is derived from the endogenous theory. The related policy-making combines the Romer, Lucas and Grossman-Helpman methods; in other words, it aims at developing the regional development strategies based on the R&I activities with capitalisation of qualified human resources. Moreover, the EU started to allocate its public resources, which is the highest public funding all over the world, directly to the regional administrations with specific requirements to develop the R&I based development strategies. In other words, the EU officially embraced the innovation-led growth model that is based on supporting R&D and innovation activities and obliged the regional administrations in the EU to apply this method to access the European structural funding. Also, the funding directly addresses the regional governments and gives priority to regional specialisation where the production of more value-added goods can be fostered (European Commission, 2012).

The endogenous growth theory still keeps an important place in the academic literature and policy agenda of economic growth. The long-term sustainable growth and growth-effects of R&D activities are important contributions to the related literature. As a matter of course, it still covers important place in theoretical and applied economics.

2.2.4. Location Theories, Regional Economics and Economic Geography

In this section, locational and/or geography-based approaches (e.g. regional economics, the Von Thünen model, the Weber model and the central-place theory) with emphasis on their assumptions and contributions to the debates on economic growth are reviewed. These approaches have been in the research agenda since the mid-19th century.

2.2.4.1. Classical Locational Approaches

Relationships between economic activities and space/place are generally explained through production processes and capacities (e.g. resources, infrastructure, human capital etc.) of the place. Economic actors and resources are distributed unevenly in space and frequently concentrated in specific places. This imbalance in the geographical distribution of resources and economic activities draws on different level of wealth and development: "the problem of factor allocation – which economists have conventionally treated as being the efficient allocation of the factors among various types or production – is more complex than this, in fact; and it is so because the spatial dimension is of crucial importance" (Capello 2009, 33).

The location theory, which can be seen as the base of all location-based approaches, is centred on the mechanisms distributing economic activities over space and focuses on location choices of companies and households, as well as the disparities of spatial distribution of activities (Fujita et.al. 1999). In this scope, "the location theory gives regional economics its scientific-disciplinary identity and constitutes its theoretical-methodological core", Capello says (2009, 34). Regional economics, which is strongly connected to the location theory, is a discipline of economics focusing on regional dimension of production, market and economy. This discipline does hence by including space in logical schemes, laws and models and analyse the formations of production, distribution, growth and development over space. Von Thünen (1783-1850) can be seen as the founder and first scholar of the location theory and regional economics. He developed a physical-metric space model based on an assumption on which economic activities organised spatially in terms of accessing to the final market. Additionally, his locational equilibrium model is centred on an assumption of optimisation between transportation costs and decision-making (Alonso 1969). The Von Thünen model contains of some unusual variables for his era in order to explain territorial agglomeration, e.g. volume and weight of the good, transportation costs, type of agricultural production etc.

Alfred Weber (1868-1958) is the first researcher who developed a model explaining how decision-making works for industrial companies. The model attempts to map the spatial division of markets related to producers and companies. "The model hypotheses a demand evenly distributed across the territory which determines the location

choices of firms, these being assumed to be punctiform" (Capello 2009, 36). Therefore, Weber's considers competitive relations of a set of companies as the main determinant and offers a physical-metric optimisation model that is fundamentally based on the transportation costs and agglomeration of economic activities (Clarke and Wilson 1989).

Among the locational theories, the central place theory, which is developed by Christaller (1893-1969) has a special place as the fact that it shows how economic decline of central places take place if the delivery distances become larger and/or if shipping costs vary. The theory basically analyses the location and its role in production while market centres serve hypothetically even spread of productive (agricultural) population (Krugman 1998). In other words, the theory explains how two fundamental features of an economy, scale and transport cost, interact over space.

According to the central place theory, location choices are very rational and determined by two variables; minimisation of transport costs and accumulation of capital. Interactions between scale economies and transportation costs cause the lattice of central places, each serving the surrounding. In this model, Christaller exposes the roles of central nodes in market hierarchy and indicates a large number of market places with connections between every group of market places and larger administrative centres. Lösch subsequently contributed to the theory with emphasis on minimising transportation costs and thus explains how transportation costs lead to the establishment of hexagonal markets. Consequently, the central place system is generally modelled as a set of nested hexagons (figure 2.5) (Fujita et.al. 1999).

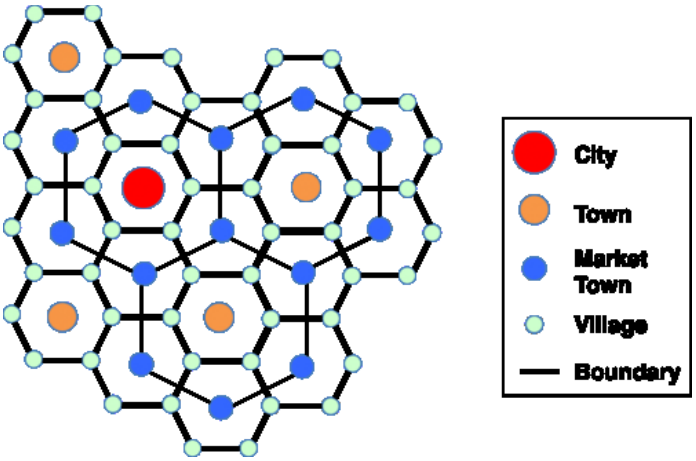


Figure 2.5. Central Place Theory Model
(Source: Hsu et.al. 2009; 271)

Both, the Weberian location theory and the central place theory, have been criticised for a while because of the unreal assumptions of distribution of demand and rigid understanding of transport costs. However, both theories indeed have been very useful to understand how an individual agent interact over space. In addition, especially the central place theory provides a sort of schematic and systematic approach that is not a case for most of other theories and hypotheses (Krugman 1998).

Locational approaches assume that there is a clear connection between economic growth models and geographical/locational decision-making. Even though this assumption may be seen superficial, these approaches have nourished very popular and important theories like the new economic geography.

2.2.4.2. New Economic Geography

To begin with, considering the widely accepted economic theories on economic growth, topics focused by the location-based theories (e.g. position of centres, distance, transport, geographical interactions etc.) are not popular or even not taken into account adequately. There were few early attempts to understand the role of space and they are mostly limited with a superficial comprehension e.g. reducing all space dimension to the geographical distance. For example, the Ohlin Theory, developed in 1933, analysed how transportation costs affect the settlement systems in terms of trade and industrial specialisation. However, even in these theories taking into account the spatial distance, role of space was solely a remit of regional economists (Schmutzler 1999). Paul Krugman (1981 and 1998) significantly contributed to change this common understanding through introducing the new economic geography where he sought ways to explain how spatial unevenness at different scales are materialised. Krugman asks one simple question: which factors have influenced and still continue to influence the geographical distribution of economic activity? His answer deviates from the very classical theories like the central place theory and the Weberian hypothesis and provides an answer based on the factors fostering capital accumulation and creating clusters. Uneven distribution of economic activities across space is more connected to the secondary factors determined by the spatial impact rather than the activities themselves, Krugman (1998) states.

Clustering is the key factor of spatial inequality for the new economic geography. Clusters arise following the spatially concentrated increasing returns to scale which can

derive from a number of different forces: firstly, there are public goods where consumption depends on geographical access. For example, city centres are natural clusters. Secondly, there are positive technological externalities such as knowledge spill-overs. Thirdly and finally, clustering forces are formed through thick market effects, particularly by labour markets. Better organised labour markets can facilitate accessing well-matched skilled workers, as well as requirements of business. In this point, not only the size and components of the labour market, but also capacity building activities (to acquire better skills to prospective employers) can play critical role (Krugman and Venables 1995).

New economic geography follows the insights of different approaches and compiles different theories like locational theories, neoclassical approach, endogenous model etc. Hence, a model is introduced based on an imperfect competition and increasing returns to scale of a monopolistic competition. Similar to locational theories, the new economic geography considers the spatial concentration and distribution of economic activities as a natural consequences of market interactions that indeed follow the principles of scale economies.

The new economic geography has fundamental similarities with the endogenous growth theory. Both approaches consider capital accumulation as a unique way to grow because companies with growing capital always contribute to the productivity and encourage others entrepreneurs. This spill-overs effect takes place in the course of investments in physical capital (infrastructure) and/or human capital (capacity building) (McCann and Oort 2009). In this context, novel feature of the new economic geography, different than the endogenous growth theory, is related to capital agglomeration as the new economic geography recognises diversification of space: capital concentrates around particular poles of development; therefore, diversification is not only observed between regions but also within the same region. Moreover, the new economic geography offers a model to categorise settlements according to physical (e.g. morphology and size) and territorial features (e.g. economic and social interactions at local level). Therefore, the new economic geography demonstrates that territorial phenomena can be analysed with the traditional tools of economic theory like the optimisation of commercial choices; hence, various conceptions of space can be synthesised. As a result, dynamic growth mechanisms with increasing returns and transportation costs reprise the economic-locational processes, the new economic geography claims (Capello 2009).

The new economic geography is rooted on a diverse intellectual tradition as the fact that it combines the traditional location approaches with the modern trade theory. In this way, it provides an integrative approach also applicable to intraregional and international markets (Schmutzler 1999). Eventually, the new economic geography provides an integrated and micro-founded approach to spatial economics, which emphasises the role of clustering forces in generating an uneven distribution of economic activities and income across space. The approach has been applied to the urban and regional economics with emphasis on the origin of international inequalities and its reflection to the dynamics of regional disparities (Venables 2005).

2.2.4.3. Elizondo-Krugman Hypothesis

The Elizondo-Krugman Hypothesis, a specific path under the new economic geography, deserves to be elaborated as the fact that this hypothesis clearly asserts one of the concerns of this thesis: liberalisation of an economy, particularly liberalisation of international trade, would close the regional disparities (Krugman and Elizondo 1996). The hypothesis can be fundamentally seen as a part of the new economic geography; additionally, it brings fruitful discussion on the international trade, liberalisation of economy and argument of liberalisation-inequality interactions.

The hypothesis asks where the origin of regional disparities is and offers an answer in a historical context: the import-substitution model of industrialisation caused asymmetric trade relations between economies, as well other settlement problems like overpopulation, overurbanisation, being stuck in low value-added productions, lack of technology etc.; therefore, these issues would only be deepened unless liberalisation of international trade is fully realised (Krugman and Elizondo, 1996).

Liberalisation of international trade positively affects the distribution of economic activities across cities and regions, the Elizondo-Krugman hypothesis states, as companies concentrate in the areas where mandatory costs are relatively lower. These possible low-cost areas are mostly connected to the territories open for international markets and competition as open conditions can facilitate knowledge transfer, accessing cheaper labour forces, cooperating complementary producers and so on. Following these assumptions, the import-substitution and inward-oriented policies induce the concentration of consumption and production in specific regions and reproduce the

uneven spatial distribution. Thus, the hypothesis supports the open-market conditions with full engagement and promote open international trade in order to decrease regional disparities (Krugman and Elizondo 1996; Das and Barua 1996). In other words, any conflict between economic growth and regional distribution of income may be omitted in an open economy. Therefore, openness of an economy is an instrument to achieve both economic growth and a geographically equal development: "…in a country, which follows a restrictive and inward-looking policy, internal trade compensate for the meagre size of its foreign trade. This leads to concentration of production and trading activities in large metropolitan cities, which have traditionally developed infrastructural facilities for large-scale production, manpower training, financial transactions and marketing" (Barua and Chakraborty 2006). This assertion is also based on the non-monopolistic market requirement. The hypothesis considers that an opening up the economy to international trade breaks the monopoly power of big companies in these concentrated areas. Therefore, it would result a more equal distribution of economic activities across regions.

The Elizondo-Krugman hypothesis has got popular in the economical and policy domains as it provides a simple model explaining not only uneven development of regions, but also the existence of overpopulated and over-urbanised cities. The model asserts that overpopulated cities are the results of 'forward and backward linkages' arising when all production structure only serves to a small domestic market: "these linkages are much weaker when economy is open to international trade; in other words, the giant Third World metropolis is an unintended by-product of import substitution polies, and will tend to shrink as developing countries liberalise" (Krugman and Elizondo, 1996, 11). Seeing the closed domestic markets as a key factor in the emergence of oversized metropolises has promoted by a big group of scholars as the fact that urban issues had not been considered parts of international economics before this research took place. This linkage between trade policy and urban development, as well as regional disparities, has been empirically tested by a plenty of following researches; however, no consensus has been established through supporting (or appealing) the Elizondo-Krugman hypothesis. What is certain that the hypothesis prevailingly remains valid in the literature.

2.2.5. Marxian Political Economy Approaches & Regional Uneven Development

The Marxian approaches have significantly contributed to the debates on economic growth, particularly with emphasis on structural components of growth, e.g. capital accumulation, division of labour, specialisation, social formations of production, production poles etc. Additionally, these approaches contributed to encore the topics of uneven development in the literature of economics and geography. The novelty of these studies is centred on their historical perspective; uneven development historically prevails and sustains as it is a natural part of capitalism. Briefly stated, "uneven development is a statement of the fundamental contradiction in capitalism" (Smith 1991).

Marxian originated theories are critical and alternative to the mainstream neoclassical approaches, as well as their domination in the fields of economic growth and regional development. These critical approaches have actually found a significant number of supporters from academic environments as the fact that certain market failures have widely taken place in the last few decades, opposite to the main liberal rhetoric where it is claimed market exchanges can increase the efficiency of wealth distribution. Eventually, not only in academic domain but also in political domain, the Marxian approaches pushes to the margins and became the basis of alternative approaches and movements (Eden 1992; Peet and Hartwick 2009).

In general terms, ‘space’ is represented as a high level of abstraction in the classical Marxian works. The analyses of the productive forces in relation to the capitalist mode of production take central place in these studies as it is seen main stimulations for capital accumulation and urban and regional growth (Marx 1964 and 1973; Engels 1973). Since capital is the central driving force, the Marxian studies on economic growth have seen accumulation of capital itself as a reason of uneven development owing to determined moments of uneven and combined movement of capital (Mandel 1975; 243 and Edel 1992; 22). From this point forth, the use of the term 'development' and 'unevenness' in the Marxian theories can be described as following:

> Marxists have used the term *uneven development* or *uneven and combined development* to describe the inherent tendencies in capitalism that lead to different outcomes for various regions or locations, and their inhabitants. Some actually speak of a *law of uneven development*, implying an inevitable spatial dimension

> to Marx's more general statement that capitalism inevitably amasses wealth and poverty at opposite poles (Edel 1992, 24).

While back then the neoclassical approaches are in many ways ahistorical, Marxian understanding considers capitalism as a historical system. Marxian scholars focus on the long-term historical changes of socioeconomic structures where they claim that ahistorical approaches cannot explain historical phenomena by only assessing the snapshots of production processes, e.g. various models centred on conjunctural changes or static market analysis: "models focused on the approach to equilibrium seemed particularly inadequate for treating the discontinuous breaks in history that involved changes in institutions or economic systems" as Edel states (1992, 3). On the other hand, historical perspective of the Marxian approaches is based on the origin of the Marxian philosophy. The concepts 'mode of production', 'accumulation of capital' and 'class struggle' are critical in order to comprehend the historical bases of the Marxian understanding. The capitalist mode of production, for Marx (1967), includes two elements: 'forces of production' that refer to labour power and means of production (tools, machinery, land, infrastructure and technology that underpin the production process), and 'social relations of production' that cover property, legal system of property rights and trade legislations that govern the system of production (Marx 1967). Hence, a separation between producers and their means of production, as well as production and its socioeconomic context, is a key of the distribution of surplus values (Castells 1997). Therefore, regional uneven development is associated with the interregional transfers of surplus value owing to the fact that unequal asymmetric relationships between territorial class fractions of capital (Liossatos 1988). This asymmetric relationship, as a matter of fact, reflect the discrepancies in regional capital intensities. Capital intensity, in turn, may reflect a different state of development of the production forces and a different level of organisation of the working class' fraction. As a result, a fraction of capital in one region may receive a smaller share even though it contributes to the national income in larger quantities.

Marxist analyses particularly focus on two processes in the capitalist mode of production. First is the process of class exploitation by surplus value creation; and second is the process of capital accumulation, which interacts with the processes of economic crisis and uneven development. Both processes are elaborated in two terms: as short-term activities to explain temporary phenomena and as a long-term historical model to

comprehend and explore the capitalist system. In this context, the extraction of surplus value in production goes hand in hand with a process of exploitation and this exploitation is hidden in capitalism by the apparent fairness of exchange (Marx, 1967). While workers produce for bourgeoisie, bourgeoisie pays them as wages. "This exchange mechanism hides the fact that the retention of surplus value is equivalent to a division of the worker's time into production for self and production for a dominant class" (Edel 1992, 15). However, it should be noted that capital accumulation is not always a successful progress. With the contradictory forces and limits of production itself, capital accumulation processes would fail and lead to economic crises and depressions. These crises and depressions are as well localised in a specific space/region; thus, capital accumulation by nature contains severe unevenness including geographical uneven development.

Marx and Engels (Engels 1973; Marx 1964, 1967 and 1973) originally believe that uneven development emerge and sustain due to the fact of unequal relations of capital accumulation. Also, there are more contributions to this standpoint provided by their followers: some focus on uneven diffusion of capital into spatial organisation; some explain unevenness through the role of specialisation and spatial division of labour; and some others centred their works around the exchange of values that is naturally asymmetric in a capitalist mode of production itself. There are various gradual results of capital accumulation processes, in this scope, like concentration, centralisation and polarisation of capital and labour (Harvey 1982). Owing to increasing technical and technological capabilities of production centres, regions prevalently having intensive capital accumulation have an advantage and attract more investments, as well as labours. Eventually, capital accumulation always gets centralised and creates production poles (Smith 1991). At the same time, two circumstances take place in less-developed regions: (i) as the surplus value declines, new investment possibilities in the region decreases; consequently, underdevelopment sustains; (ii) due to the increase in unemployment rate, probability to reach a balanced economy decreases (Gordon 2004).

Structural characteristics of a capitalist geography have been studied by the Marxian and post/neo-Marxian scholars for several decades and provide fruitful literature on the concepts of development, uneven development, accumulation, specialisation, polarisation and so on. On the one hand, these scholars agreed the fact that uneven development is prevailing and continuing historically based on a fundamental contradiction and characteristic of capitalist geographies; on the other hand, there is still

need to further analyse the geographical expressions of the fundamental conflicts of capital accumulation.

2.2.5.1. Regulation School Approach: A Terminology of Critical Economic Geography

The *regulation school approach* was established in the 1970s and has created a massive impact on social sciences especially in the field of political economy. Novelty of conceptual framework of the regulation school is based on the analyses provided in order to comprehend the paradoxes of capitalist system between instable and inconsistent conditions emerged via economic crises, transformations, and regulations[5].

The approach emphasises five dimensions of regulation: technology, labour relations, firm organisations, public policy and spatial policy, which have been developed by the late scholars of the regulation school (Jessop 1994 and 2006; Knudsen 1996; Lipietz 1992 and 1998; Cho 1997; and Harvey 1989). These dimensions altogether constitute a *regime* that refers to "partial, temporary and unstable result of embedded social practices rather than the pre-determined outcome of quasi-natural economic laws… its theorization of economic development and change claimed to give as much regard to historical processes as to the basic rules of the capitalist society" (Amin 1994, 7).

This historical understanding of the critical approach is reached significance in the concept of the 'regime of accumulation': "the logic and laws of macro-economy describe the parallel development, over a long period, of the conditions of production on the one hand (productivity of labour, degree of mechanisation, relative importance of the various branches of production) and, on the other hand, the conditions under which production is put to social use (household consumption, investment, government spending, foreign trade)" (Lipietz 1992, 22). At this point, the regime of accumulation includes norms pertaining to organisation of production and work (labour processes), relationship and forms of exchange between branches of the economy, common rules of industrial and commercial management, principles of income sharing between wages, profits and taxes, norms of consumption and patterns of demand in the marketplace, and other aspects of economy (Amin 1994, 8).

[5] For deeper review, see Aglietta 1979; Lipietz 1990, 1992 and 1998; Esser and Hirsh 1989; Knudsen 1996; Elam 1990; Amin 1994; Harvey 1989; Cho 1997; Tomaney 1994; Jessop 1994, 2006.

The shift in the 21st century in the regime of accumulation and its mode of social and political regulations involve plenty of signs and tokens of radical changes, Harvey states (2005). These changes can be observed in the labour processes, in consumer habits, in geographical and geopolitical configurations, in state powers and practices. Furthermore, the shift in the regime accompanies with significant changes in the spatial structures (Harvey 1982, 1985 and 1989). As a matter of fact, in this way of thinking, economic phenomena can be explained with an extended viewpoint including spatial, institutional, historical and social factors[6]. However, as the scholars of the regulation school often underline, people still live in a society where production for profit remains the basic organising principle of an economic activities. Regulations are aligned with specific shifts while basic rules of a capitalist accumulation continue to operate as an invariant shaping force onto economic development.

The regulation approach identifies different pathways of development in capitalist system, in which structured by different mode of regulation. In this context, geographical uneven development is consequences of (1) market conditions, (2) capital movements through successive rounds of accumulation and division of labour, (3) choice of investment and the sphere of capital, and (4) geographical requirements of the investment choices (Johnston et.al 2000). Beyond the listed economic issues, there is a strong link between socioeconomic regulations and their spatial variations. Scott (1988) argues that particular regimes and mode of regulation have fostered a particular set of industries in specific production locations. Storper and Walker (1989) put forth that capitalist competition causes its own distinctive geography of winner and loser regions within countries, which create an 'inconstant geography of capitalism'. This inconstant geography is related to the shifts in the regimes: each regime of accumulation ends over time in a crisis period of major instability or stagnation and a new regime begins with the new organisation of production and corresponding 'new sets of spatial practises' Therefore, the regime of accumulation and the mode of regulation can be seen as being fundamentally grounded in the socio-political dynamics of particular places (Johnston et.al. 2000). This can be defined as an active role of space since the geography of regulation is not an optional container of the activities; on the contrary, the process of regulation is constituted geographically (Goodwin and Painter, 1997). Therefore,

[6] Same approach is also followed by Aglietta 1979 and 1982, Amin 1994, Esser and Hirsch 1989, Harvey 1989, Boyer and Saillard 2002.

geographical unevenness of capitalist system is inherited and reproduced by the dynamics of the regime of accumulation.

2.2.5.2. Spatial Division of Labour, Spatio-Temporal Fix and Uneven Development

Three concepts have critical importance to comprehend regional uneven development from the viewpoint of Marxist political economy. They are developed by the Marxian scholars and two of them following the same assumptions and methodology of the regulation school; namely, the *creative destruction* (Lefebvre, 1991), the *spatial division of labour* (Massey 1984) and the *spatio-temporal fix* (Harvey 1982). These three concepts indeed are strongly interrelated as the fact that the scholars assess capitalism under same assumptions: (i) capitalist system's continuous tendency to expansion; (ii) uneven nature of capitalist development; and (iii) drive to reduce the turnover time of capital.

Following Lefebvre (1991), the long-term survival of capitalism is premised upon the inherited territorial organisation of capital that can be destabilised especially in the crisis periods; and therefore, process of creative destruction can seek new configurations of territorial organisations in order to establish a new locational grid and scale-specific forms for the accumulation process. Massey's explanation on the spatial division of labour (Massey 1984, 2001, and 2004) and David Harvey's concept the spatio-temporal fix (Harvey 1982; 1985; 1989; 2000; 2005a; 2005b an 2006) enhance the Lefebvre's approach and provide a fruitful conceptual background in order to comprehend the nature of spatial configurations, i.e. the *temporal organisations/events of the regions* by Massey (where she identifies time and space as invisible dimensions and raises spatial dimension as determinant as time) and the *temporal practices of capital accumulation* by Harvey (where he underlines the organic connections between space and time in the context of capital accumulation).

Time and space are socially constructed in the context of Massey's understanding on the spatial division of labour. Although both are 'facts of nature' in the first instance, they turn into the 'value in nature' in capitalist societies. Time and space are embedded in the materiality of the world; but meanwhile they are in a process of social reproduction (Massey 2004). Thus, capitalism has to control time and space, which is only possible by

means of an effective social and spatial divisions of labour. Capitalism, de facto, regulates workforce through given hierarchies, social features, time management, production and reproduction of labour etc. This technical division of labour also interacts in a given spatial and temporal organisation:

> The geographical landscape which results is not evenly developed but strongly differentiated. 'Difference' and 'otherness' are *produced* in space through the simple logic of uneven capitalist investment, a proliferating spatial division of labour, an increasing segmentation of reproductive activities and the rise of spatially ordered (often segregated) social distinctions (Harvey 1996, 295).

Massey (1984) emphasises the crucial role of the division of labour in capitalism with regards to its connections with all areas of production, technology, labour relations, business structure, policies and spatial organisations. In this sense, spatial division of labour is connected to the nature of historical capitalism including its structural components, e.g. capital accumulation, technical division of labour, investments, specialisation, uneven development and so on. Initially, economic growth requires improvements in the labour productivity and forms of industrial organisation, communication, exchange, and distribution. These improvements indeed lead to an increasing division of labour and specialisation of functions. In this context, all parts of production and functions defined through technical division of labour are lengthened over space and take place in different localities (Massey 2004). Moreover, space dependency is a characteristic feature of capitalism as spatial implementations offer such a way to create an available condition for the further accumulation of capital. Furthermore, differences between geographical locations interactively redesign the technical division of labour. This expansion compels a restructuring in business environment sectors and industrial branches related to the unstable character of capital accumulation. Hence, changing position of individual localities corresponds to emerging or disappearing investment possibilities, as well as changing pattern of inequalities.

Massey's understandings on the spatial uneven development and its relation to the spatial division of labour can be understood within five dimensions (Massey 1984, 2001 and 2004):

- *Restructuring in companies, sectors and industrial branches*: this dimension is strongly related to the unstable character of capital accumulation, which depends upon interaction between different productions, existing characteristics of spatial differences, and time of the specific process of production. This also explains why

the strategic calculations of profit-seeking capital confront with constantly shifting labour pools.

- *The changing position of individual localities*: Economical and social structures take part in the individual roles determined by localities in different spatial division of labour in relation to the fact that prosperities of capital investment and accumulation are dependent on each spatial 'layer'. "The complex result of combination of their [localities'] succession of roles within the series of wider, national and international spatial division of labour," states Massey (1984; 31-32).
- *The layering of successive rounds of capital accumulation* engenders the changes in the pattern and form of regional inequality.
- *The active role of geography* provides an uneven opportunity surface to be exploited by capital owners. The high level of inequality manifests itself geographically.
- *The shift in the balance of an economy,* which emerged with the collapse of the welfare state, created a shift towards the intraregional inequality rather than interregional inequality because of the fact that the public sector employment was more evenly spread throughout the country.

Following the Massey's approach, the changes in agglomeration and specialisation of labour and capital are inevitable concerning the division of labour in the capitalist geographies. Transformation in the division of labour would mostly lead to spatial changes as the spatial division of labour does not work different from technical and social division of labour. Shifts in the production and investment cause a differentiation/stratification in labour processes. This change in the social division of labour results in a change in quality and quantity of social organisations. At the last instance, emerging division of labour is coherently reflected in spatial milieu, as well. On the whole, change of a capitalist geography in every scale is indispensable (Massey 2004).

Harvey's contribution to the debate on the spatial uneven development notably affects the studies in this area. Harvey (1982, 1985, 1989, 2000 and 2006) elaborates capitalism and its spatial systems in relation to the spatial dynamics and historical geography of capitalism. In other words, he discusses how capitalism historically shapes spatial organisation over time. His response is rooted the Karl Marx's conception of the 'annihilation of space by time', which implies capital has to overcome to physical borders

based on the needs of capital accumulation. Consequently, capital annihilates and re-establish production places in order to maintain economic growth. Harvey (1982, 246) states this as following: “the circulation of capital makes time the fundamental dimension of human affairs and seems to imply that under capitalism the meaning of space and the impulse to create new spatial configurations can be understood only in relation to temporal requirements of capital accumulation”. In detail, surpluses of both capital and labour generated in the crisis period need to be successfully absorbed through the geographical expansion, Harvey says (1989). In this context, capitalism is impelled to seek a spatial fix in any savage way. Massey (2004) emphasises the same point through the ‘active geography’: active geography shapes the restructuring processes and regulates contradictions in terms of uneven opportunities to be exploited by capital. An achievement of capital accumulation engenders amendments in the pattern and form of regional inequality, as well as the labour distribution over space and their interactions.

General tendency in much of social theory understands the space as a simple and immutable container in which social processes materialise. In this way, understanding and explaining spatial uneven development have to remain inconclusive (Harvey, 2005). Herein, the critical question is how the laws of accumulation produce uneven development within a predetermined spatial structure. Since space is actively produced and has an active momentum together with the social processes, capital accumulation creates not only spaces but also different forms of spatialities. Consequently, the establishment of a spatial fix is a necessity for capitalism to resolve its inner crisis tendencies through geographical expansion and restructuring, as well as annihilation. In this context, region, like all other spatial formations, is constituted based on the mode of production and related social formations. Similarly, capital accumulation is also socially constituted and spatialised on the strength of the regime of accumulation (Harvey, 1989). Hence, space is constituted and organised as a net of interwoven partial accumulation processes and defines territorial ambits. Likewise, production is always connected to regionalisation and specialisation of labour that require a specific scale, technological capacity, reorganisations of political realm and deregulations of labour markets. In parallel with the implication of changes in the nature and organisational characteristics of production, the functional division of tasks between regions interactionally change over time (Harvey 2006).

The spatio-temporal fix is a basic law of capital accumulation, behind which lies a fundamental contradiction between fixity and movement in the context of the process

of capital accumulation. It underpins the production of geographical uneven development in many ways. Also, the concept is central to understand why ‘actually existing neoliberalism’ (for details, see section 3.3.1) is always aligned with chronically unstable geographies and spatial unevenness.

CHAPTER 3

LIBERALISATION IN TURKEY: FROM EXPORT-ORIENTATION TO NEO-CON LIBERALISM

This chapter starts with a brief review on the basic concepts of liberalism, existing form of neoliberalism and implementations in the world. It is followed by a detailed elaboration on the history of Turkish liberalisation with emphasis on the breaking points and characteristic features of the history. Special attention is given to the post-1980 period as the fact that rapid liberalisation took place in this period: from the very first serious liberal step of the 14th January Decisions until the contemporary neo-conservative and neoliberal ruling period.

The chapter, additionally, offers a particular understanding on the liberalisation history provided by the political economy viewpoint. As elaborated in the previous chapter, a history of capitalism can be defined through the spatio-temporal fixes, which correspond to the requirements and regulation of capital in a given time and space. From this point forth, Turkish liberalisation history is elaborated in five periods referring to the temporal shifts of capital accumulation described by Boratav (2008 & 2015). These periods build up the basis of empirical analyses presented in chapter four.

3.1. Economic Liberalism: Concept, Characteristics and Implementations

Economic liberalism was theoretically formulated for the first time by Smith (1776) and Mill (1848) and started to put into action practically since 19th century after lowering the custom tariffs in the 1820s. Promotion of the liberal policies and market-led regulations by the mainstream ideological and political viewpoints started in the later years of the 1900s, as well. However, this promotion could not achieve a continuous liberal progress. The liberal policies were systematically combined with some other policy manners and different modes of regulations depending upon the socio-political

forms of the world. For example, state-based protectionist policies intensively applied after the World War II or Keynesianism got very popular under the framework of welfare state during the Cold War. History of liberalisation has always had these types of amendments and shifts towards different directions based on the policy conjunctures.

The breakdown of the Bretton Woods system was a starting point for the real resurgence of economic liberalism. The shift from state-based inward-oriented policies to free-market based economic liberalism took place all over the world in different ways and at different times (Quiggin, 2005). Liberal economic regulations were encouraged by the international regulators and governments; thus, liberalism rose as an idealised unique way for economic salvation particularly in the countries having recessions. This led a wave of transformations all over the world on the basis of the strong engagement to market/trade-based policies and open tariff for international trade. Also, microeconomic reforms and financial deregulation for the establishment of competitive market, lowering corporate taxes and theoretically minimised governmental interference in market policies, as well as pervasive competition not only diffused in economic relations but also social norms, accompanied to the idealised liberal rhetoric. The rhetoric of economic liberalism, as a part of a neoliberal political ideology, has drastically transformed the institutionalised political thoughts in the contemporary agenda. During these years, liberalism has been promoted as a common sense and declared an independent from any ideological and political discussion. Ironically, liberalism turns into one of the most common issues of economic, political and ideological debates.

The initial expectations of liberal policies are positioned against the statist import-substitution policies with emphasis on the prospect good performance in developing countries. They are can be summarised as following (Senses, 2016, 21):

1. rise in saving and investment rates,
2. increased momentum in growth, employment, industrialisation and exports,
3. improvement in income distribution,
4. reduction of corruption and rent-seeking arising from administrative controls,
5. removal of the bias against agriculture and exports.

Contrary to abovementioned expectations, implementation of economic liberalism all over the world resulted significantly different. Particularly, economic performances of middle-income countries under neoliberalism were considerable poor and suffered many times by economic crises since the 1980s. In addition, growth has got

dependent to international capital inflows, which is not sustainable and is also open for speculative interventions. Moreover, labour markets have not performed well under neoliberal policies as services and finance do not have adequate capacity to accumulate a large part of workforce. Employment rate in general – and in manufacturing particularly – decreased notably in the most of the middle-income countries. This is placed as 'growth without employment' (also mentioned as 'jobless growth') in economy jargon. And eventually, uneven spatial development has turned to an embedded outcome of the liberal policies.

3.1.1. Neoliberalism and Actually Existing Neoliberalism

Economic stagnation in the 1970s entailed drastic changes in the policy areas and societies all over the world, as well as the global economic system. The ideology of neoliberalism was reborn in these years with an emphasis on the flourished version of an old tradition of liberal thought. In other words, in the 1980s, the revival of liberalism was practically realised with a re-polished concept; neoliberalism. It indeed arose from the key principles of 19th century classical economic liberalism, which connected to a belief in free trade and limited role of the state in the domestic economy. This brought an evident political success for the neoliberal movement. Also, similar to the rise of the liberal ideas in the 1850s-60s, the neoliberal movement in the 1980s-90s took place once again in the years that were characterised by technological revolutions and increasing international integration.

Brenner and Theodore (2002) highlight three pillars of neoliberalism where main deployments of dominant political ideology constituted; namely, (1) open, competitive and unregulated markets; (2) liberated from all forms of state interference; and (3) optimal mechanism for economic development. These three pillars have become the basis of the neoliberal doctrine and help the neoliberal political ideology to gain popularity. The doctrine emphasised well-known deregulations, e.g. the decreasing state control over major industries, the assaults on organised labour, the reduction of corporate taxes, the privatisation of public services, the cuts of welfare programmes, securing the capital mobility, and the strengthening interlocality competition. These deployments are promoted as an only way to achieve economic success by the governments and international regulators; however, they are commonly criticised as 'utopia of unlimited

exploitation' at the same time (Bourdieu, 1998). In any manner, owing to advantages taken over the debt crisis of the early 1980s, neoliberal programmes applied globally by means of Bretton Woods' institutions, e.g. the General Agreement on Tariffs and Trade (GATT) - World Trade Organization (WTO), World Bank (WB), and International Monetary Fund (IMF) with references to Thatcherism, economic rationalism and the Washington consensus. Eventually, neoliberalism became a dominant political and ideological form of capitalism all over the world starting from the early 1980s.

Market-led liberal policies have found many proponents since the 1980s[7]. Economic transformations based on liberalisation of capital – together with diminishing the significance of the public sector within the economy, restructuring the industrial production on behalf of export-oriented policies and the removal of foreign trade limits – s became the most popular policy dictums. In addition, international institutions and regulators started to impose new economic programmes based on reducing public investments in manufacturing, speeding up the privatisation, harmonising the activities vis-à-vis international trade, reducing welfare-state benefits and deregulating the labour market. These programmes were increasingly adopted all over the world, particularly by the first and third world countries.

Neoliberalism is not a pure economic programme, but a theory of political-economy practices that contains different components such as neoclassical economic fundamentalism, market-led and individual-centrist societal formations, moral authoritarianism, free trade and supply-side economics. Similarly, Harvey (2005, 2) describes neoliberalism as "a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterised by strong private property rights, free market and free trade". In this respect, principles of liberalism, through neoliberal programmes, have diffused into the institutional structures, social life and even individual lives.

Lastly, liberalism is a polyvalent discourse having political, economic and ideological aspects. It serves as a strategy for restructuring the relationships of state to economy. Although pure forms of liberalism hardly ever exist and is historically variable, it was materialised in the western politics, economics and social organisations. Jessop (2002) summarises this as following:

[7] Herein, it should be noted that it has been discredited after the crisis of 2008-09 in a kind of widespread manner. In addition, the "aggressive state interventionism" started to be mentioned often (Brenner, 2010).

> *ideologically, liberalism claims that economic, political and social relations are best organized through formally free choices of formally free and rational actors who seek to advance their own material (...) Economically, it endorses expansion of the market economy (...) Politically, it implies that collective decision-making should involve a constitutional state with limited substantive powers of economic and social intervention (...) [However] these three principles may conflict regarding the scope of anarchic market relations, collective decision-making, and spontaneous self-organisation as well as the formal and substantive freedoms available to economic, legal and civil subjects* (Jessop, 2002, 453).

The concept of 'actually existing neoliberalism' indicates the destructive character of neoliberal policies, as well as emphasises the real effects of liberal implementations on the macroinstitutional structures and historical trajectories of capitalism. It also consists of the capitalism's historical characteristics of growth-orientation and profit maximisation. Broadly, capital accumulation processes take place on a specific basis that is composed of the existed institutional frameworks, policy apparatuses, social formations and norms, technical and spatial divisions of labour, labour markets and spatial organisations. Therefore, the implementations of neoliberalism are largely subject to the actually existing socio-spatial framework, and for this reason, neoliberalism aims at deregulating the existing socioeconomic environment in countenance of open market. Therefore, actually existing neoliberalism is a reality against the ideal form of market-oriented liberal economy; in other words, it is a disjuncture between the ideology of neoliberalism and its everyday political operations and societal effects (Brenner and Theodore 2002). However, these sets of deregulations are not successfully applied to a large extent. Neoliberal implementations commonly resulted in pervasive market failures, social polarisation and dramatic uneven development at all spatial scales in contrast with the content of neoliberal rhetoric where promising efficient economic growth and optimal allocation of resources. Likewise, the rhetoric of neoliberalism always emphasises the free market independent from all forms of state interference, practically an intensive disciplinary forms of state intervention is taken place in order to impose market rules on social and everyday lives.

Although the ideology of neoliberalism promises a singular, transhistorical, and uniquely efficient market, the reality is always contextually embedded, institutionally grounded, and politically mediated (Peck et.al. 2017). Thus, there is no a pure, uncut or unmediated form of neoliberalism. Actually, manifestation of neoliberalism is polycentric, partial and plural accompanied with friction, contradiction, polymorphism

and spatial uneven development. Moreover, this defective result does not ensue as a consequence of the imperfect implementation of neoliberalism as commonly asserted, but it is more probably a structural problem embedded to the forms of neoliberalism. In another saying, failures are part of neoliberal project itself owing to its hybrid, volatile and combined and character (Peck et.al. 2017).

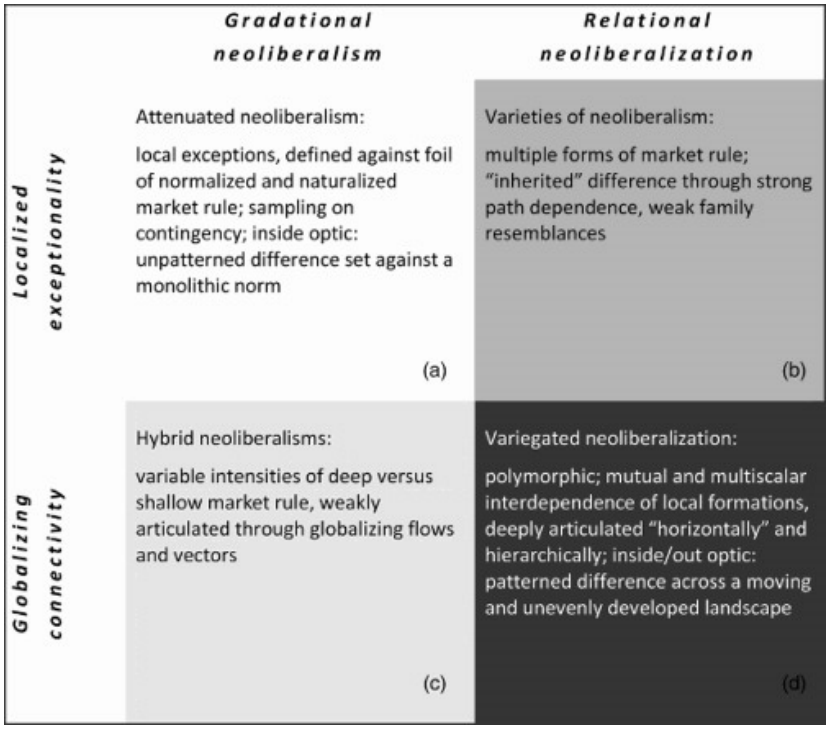


Figure 3.1. Variations of Neoliberalism
(Source: Peck et.al. 2017)

As every regime of accumulation is grounded on the inherited institutional frameworks, policy regulations and territorial organisations, neoliberalism actually exists in a specific interaction between inherited regulatory landscapes and seeks the ways to achieve 'ideal form of market-oriented economy'. Peck (2013) points out how neoliberalism is embraced its relationality and connectivity (figure 3.1). Herein, gradational and relational approaches are distinguished from each other where the first one pays attention to distinctions and degree of neoliberalism and the relational neoliberalisation more focuses on qualitative interpretations. Also, the scale differs about approaches on the neoliberal implementations since connectivity is more emphasised at global level and exceptionality gains importance at local level. Both groups of approaches endure neoliberalism at different scales local forms and exceptions are highlighted on the one side and horizontal articulations global flows on the other side.

The analytical way to theorise the gap between idealised form of liberalism and actually existing neoliberalism can be found in the political economy where the process of capital accumulation enables appropriate scale-specific forms and spatial practices, which is so-called spatio-temporal fixes (also see section 2.2.5). Spatio-temporal fixes are central to understand why actually existing neoliberalism is always aligned with chronically unstable geographies and spatial unevenness. A presence of spatial uneven development of neoliberal era, in the same breath, is a result of the capital's movements aligned with the seeking of investment opportunities particularly following the economic rescissions and stagnations. On the one hand, idealised ideological rhetoric of neoliberalism promises a utopia, on the other hand, reallocations of capital are determined by the profit maximisation and deepen uneven development through annihilating and re-establishing spatial configurations.

3.1.2. Does "One Size Fits All" Neoliberal Formula fit Turkey?

Neoliberal policies are often served as an easily applicable receipt by the Bretton Woods' institutions, which is characterised as a 'one size fits all'. Neoliberal economic programmes systematically proposed similar policies all over the world and many governments adopted them. The collapse of the world socialist system clearly accelerated this process. Neoliberal programmes, in this context, were promoted as evidently correct economic programmes and presence beyond ideological interpretations. In this context, they have been undertaken in a top-down way under the directions of the International Monetary Fund (IMF) and the World Bank (WB); consequently, local dynamics and potentials have largely been ignored. The two goals, the integration to international capital and the deregulations of open-market conditions, have been taken central emphasis and all policies have mainly focused on the implementations of these goals. However, implementations of these economic programmes have commonly failed; in addition, opponent positions have remarkably grown in economic, political and ideological fields. Shortly, one size did not fit all.

The systematic imposition of neoliberal polices 'established the unlimited dominance of capital on all societies and on the world system' (Boratav, 2015). For this, the standard liberal programmes applied in many less developed countries, which roughly followed a similar route. The state-centred development strategies on the import-

substitution industrialisation fell into the debt crisis in the late 1970s and early 1980s. Liberal reforms started to put into actions in these years and their impacts on the nation-state context had strong similarities across all transitional and less-developed countries. Then, economic strategies radically changed in favour of the liberalisation of international trade and transition from the inward-oriented protectionism to outward-oriented privatisation. In addition, this process was undertaken comparatively more quickly in the ex-Soviet bloc and their neighbouring countries (including Turkey, Greece, Romania and ex-Yugoslavian countries) involving large-scale privatisation and a radically reduced role for government, not only economic regulations but also the welfare based governmental structure. Therefore, these reforms have reflected the institutional and socio-economic environments. Moreover, in parallel with the changes in the manufacturing industry, industrial geographies and spatial patterns of labour and production were transformed to a new form that would theoretically better serve to the needs of capital accumulation (Marshal 2004).

Turkey has a similar type of storyline under the supervision of the Bretton Woods' institutions by starting the implementation of the 'Stabilisation and Structural Adjustment Program' (SSAP) in 1980, also known as the '24th January Decisions'. An exchange-rate based anti-inflationary programme, which was pretty much same to the neoliberal policies applied in Latin America, was firstly applied by the military government. In addition, once again similar to the Latin American countries, an oppressive regime with political unrest and increasing social inequality accompanied to this neoliberal programme (Boratav, 2015). In every way, economic, political, institutional and spatial structures in Turkey radically amended. The systematic deregulations in the national economy started in the 1980s and continued in the 1990s in spite of several interruptions. The shift in economic policies towards the market-oriented strategies was followed by the deregulations serving the open-market goals. The goal was a radical transformation from statism defined by import substitution under state control to a global ideology of liberalisation.

The initial phases of Turkish liberalisation created significant shifts with the purposes of reduction of the role of the nation-state in manufacturing, establishment of a more open international trade and open-market conditions and deregulation of the labour market. In addition to the export-oriented industrialisation, related liberal regulations such as the interest rate liberalisation, the liberalisation of foreign exchange rate, the capital account liberalisation, the banking system liberalisation and lowering the customs walls

were applied during the 1980s and 1990s. The subsidies allocated to the specific industries and incentives to less developed regions began to decrease. Furthermore, in line with the changes in the industrialisation strategies, the specialisation within the labour-intensive sectors increased. Though this created a couple of newly emerging industrial clusters in manufacturing sector (e.g. textile, food, contract manufacturing for electronics etc.), even most of these investments located in (or near) the old industrial centres, namely around the big metropoles like Istanbul, Ankara and Izmir. At the same time, the share of the public sector in industrial production notably decreased. Uneven development that was already inherited from the previous period was deepened. All these changes have actually been based on the monotype neoliberal programmes, which were adopted under the supervisions of the IMF and the WB. They were defended by common rhetorical arguments: 'the need to increase the level of competitiveness' and 'competitive and flexible labour market'.

Structural change of the Turkish economy also reflects the pattern of production. The average share of services in GDP increased from 37.4 per cent during 1963-79 to 54.2 per cent during 1980-2009 while agriculture decreased from 40.2 per cent to 15.6 per cent in the same periods. Considering the change in the share of manufacturing remained almost same over the same period, 17 and 18 per cent respectively, this could be considered a structural shift from agriculture to services. Eventually, the share of services reached to two thirds of GDP in the 21st century. Moreover, more than 40 per cent (%43.8) of the employment accompanied by services and agriculture, which correspond to 75 per cent of total employment in 2009-2014, work without social security (Senses, 2016). This service dominated structure resulted a very fragile economy where it is organised around low-productivity and low-wage activities.

Comparison of the economic performance of Turkey with other countries having the similar development level, i.e. middle-income countries, shows that growth in GDP per capita during 1963-1980 was higher than growth in the corresponding countries, 2.8 and 2.4 per cent respectively; however, it turned other way around and those countries performed better in the neoliberal period since 1980, 2.2 in Turkey and 2.7 per cent in the middle-income countries. In comparison with higher income countries, gap was even wider, achieving only the two thirds (Senses, 2016). Moreover, on the basis of the average annual growth rate of GDP per capita, Turkish economy performed better during the pre-neoliberal period from 1950 to 1980 compared to the neoliberal period after 1980, 2.3 per cent and 3.1 per cent respectively. The performance of this period also fails in comparison

with the import substitution period: 2.8 per cent from 1963 to 1980 and 2.2 per cent from 1980 to 2010 based on the average annual growth rate. There is a similar picture in terms of inflation. The average rate of inflation has reached 50 per cent since 1980 while it was averagely 16 per cent during the 60s and 70s. Considering the level of industrialisation achieved during the 60s and 70s and above-mentioned macro indicators, economic performance of Turkey was relatively more acceptable during the import substitution period compared to the finance-based fragile economic regime dominated the neoliberal years (Senses, 2016).

Abovementioned liberal transformation is elaborated in depth in the following sections of this chapter. Also, a detailed periodisation and liberal history of Turkey with emphasis on the structural transformations are provided.

3.2. Overview of Turkish Economy before the 1980s

This section of the thesis provides a review on the periodization of the Turkish economy by indicating the most significant steps within its history, and more detailed reviews of each period, it provides an overview of Turkish economy as a whole. The definition of Boratav (2008) is mainly taken to illustrate this periodisation of Turkish economy while some other sources are used to support this classification (periodisation of Turkish economy is available in table 3.1).

The foundational period of the Republic of Turkey is described as *reconstruction in open economy* by Boratav (2008, 39). Even though this period is generally mentioned as an exact separation from the Ottoman policies, this argument is not completely adequate particularly in terms of the national economy. Different from the political area, the economic programmes of the late-Ottoman period were sustained between 1923 and 1929. The protectionist policies of the *École National Economics* (*Milli iktisat)* and its main goal, the *development of the national bourgeoisie by state support* continued over the foundational period.

The period between 1930 and 1939 is defined as *protectionism and policy of state control* (Boratav 2008, 59). During these years, inward-looking and protectionist policies are implemented related with the first five-year industrial plan, which was put into action in 1934. With the effects of this plan and the big-scale state economic enterprises, a particular growth in manufacturing industry took place in this period.

Table 3.1. Periodisation of Turkish Economy

Years	Definition
1923-1929	Reconstruction in open economy
1930-1939	Protectionism and policy of state control
1940-1945	Stoppage and incubation (II. World War)
1946-1953	Attempt to integrate into world economy
1954-1961	Stoppage and re-adaptation
1962-1976	Inward-looking and foreign dependent expansion
1977-1979	Repression
The post 1980 period: *Structural adjustments towards neoliberalisation*	
1980-1983	Liberal economy under the military regime
1984-1988	Booms years of ANAP *- Period of economic expansion*
1989-1993	Shift to populism and convertibility *- Period of economic expansion*
1994	Crisis
1995-2000 *1995-1997* *1998-1999*	Integration to financial neoliberalism *- Period of economic recession* *- Year of economic expansion*
2001	Crisis
2002-2006	Single-party government *- Institutional restructuring* *- Establishment of counter hegemony* *- Starting accumulation by dispossession* *- Period of economic extension*
2007	Crisis
2008-…	Neo-con/neoliberal policies *- Decentralisation of capital under the single-handed power* *- Raising new business groups* *- Accumulation by dispossession*

The period of the Second World War was a type of *stoppage period* wherein almost all economic activities stopped. Boratav (2008, 81-83) describes the war years as a latent period because the class balances of the economy spectacularly changed in these years. Big landowners of various Anatolian cities had an opportunity to achieve a high profit rate and plunder various establishments. Afterwards, between 1946 and 1953, Turkey began applying more liberal policies which were based on the *internationalisation of capital.* Thus, the state-led industrialisation strategy transformed to a new scheme which was based on liberalisation and integration into the world market with agricultural exports. Turkey also began exploiting international aids in this period through the

Marshall Plan that is officially called the *European Recovery Program (ERP)*, in which the United States gave economic support the European economies after the Second World War in order to prevent the spread of Soviet Communism. As one of the main goals of this operation was to remove international trade barriers, the Marshall Aid fostered the establishment of liberal economy in Turkey.

Between 1954 and 1958, economic strategies turned to be alike the ones applied in the 30s and protectionist policies were put back in the agenda. By the implementation of the stabilisation program and the stand-by agreement in 1958, Turkey accepted the guidance of the International Monetary Fund (IMF) for the first time in the national history. This stabilisation program became one of the first important crossroads of Turkish liberalisation. After the end of the economic recession that started in the mid-50s, Turkey radically changed the economic strategies with the preparation of the First Five-year Development Plan in 1963. Thus, *the planning period* literally started which refers to the central planning, planned application of the investment and controlled resource allocation. In this way, Turkey passed to the more inward-looking and closed economy conditions. Import Substitution Industrialisation (ISI), inward-looking economic policies and the closed economy conditions began to apply countrywide (SPO 1993; 43-63, 74-101 and 205-257). The strict governmental control over financial markets and foreign exchange restrictions centrally directed the banking and financial system. However, after the high inflation and the balance payment difficulties towards 1980s, the protected policies were abandoned, with the support of the military regime.

Following sections firstly offer a review on Turkish economy before the 1980s. Following sections also summarise the liberalisation history of Turkish economy after the military coup that took place in 1980.

3.2.1. Reconstruction in Open Economy (1923-1929)

The foundational period of the Turkish Republic (1923-1929) is described as a '*reconstruction in open economy*' by Boratav (2008, 39). At that time, although the founders of the republic emphasised the strong and definite separation from Ottoman Empire *politically*, there was a clear continuity between the young state and old empire *economically*. The economic programs of the late-Ottoman period were being maintained in this period. Notwithstanding the protectionist policies of the 'National Economics'

(*Milli İktisat*), an école that dominated the last quarter-era of the Ottoman Empire, relatively set aside, the main goal of the école – *help the development of the national bourgeoisie by means of state support* – retained its central position in economic policies.

The Izmir Economics Congress (*Izmir İktisat Kongresi*), gathered in February 1923, is symbolically important as it represented the dominant/chosen economical approach of the republic. The general intention of the congress was very similar to the main principles of the *Milli İktisat*. It was developmentalist at the first instance; secondly, supporting both types of capitals, domestic and foreign; thirdly, stimulating market-oriented farmers; fourthly, facilitating national components for controlling economic activities; and lastly, promoting moderate protectionism (Boratav 2008, 46).

In this period, development of the national bourgeoisie by means of state support was considered as an essential for economic development and modernisation. From this point forth, state economic enterprises, which were dominating the whole domestic market, were stared to be operated by private enterprises. As the production and import of many goods were being controlled by the state, the monopole companies were supported with every market movement; therefore, the bourgeoisie nourished by public capital and government emerged as new power elites (Boratav 2008, 40). In contradistinction to some common readings, Boratav highlights that the young republic supported the foreign capital eagerly. The domestic production was funded by the foreign capital and new type of international corporations took place. Ökçün (1971) demonstrates this cooperation by stating that 201 incorporated companies (Co. Inc.) were established in the years 1920-1930; and %66 of those companies had foreign capital.

Between the years 1923 and 1929, while industrialisation gained a momentum through the steering roles of state-supported monopole companies, new lawful regulations were undertaken to support these uprising companies including the financial incentive to manufacturing industries; namely, *Teşvik-i Sanayi Kanunu*, was applied in 1927. After these incentives and corporate foreign investments, Turkey was integrated into the world economy as a typical Third World Country which mainly produced and exported the raw materials (including agricultural goods) while manufactured goods had to be imported. Rare examples of the final/manufactured products were matches, alcohol and gun powder. This under-industrialised condition can also be recognised in the social structure of the country. While the biggest proportion of the population was living in the rural areas and dealing with 87.3 per cent of total domestic production, urban population was mostly concentrated in Istanbul (40% of total urban population). Istanbul was

followed by İzmir due to its harbour and former contacts with foreign countries (Boratav, 2008).

3.2.2. Protectionism and Policy of State Control (1930-1939)

While the strong recession in the world economy was observed during the Great Depression in 1930s, Turkey was following the state-based protectionist policies and aiming to invest in national manufacturing industry. From this point of view, Boratav (2008, 59) describes this period with emphasis on two characteristic policies: *protectionism* and *policy of state control*.

The significant growth in manufacturing industry was undertaken between 1930 and 1939. The annual growth rate was 10.3% during the 1930s, at one and same time the annual growth of total GDP was 11.6%. The share of manufacturing products in total GDP increased from 9.9% in 1929 to 18.3% in 1939. It is the biggest growth rate that has ever been observed in the Republic of Turkey all over time (Boratav 2008, 70-71).

The private industries had significant influence on the economy in this period because the share of gross profits of big companies explicitly enlarged. The share of private industry in the national income increased from 3.4% to 6.2% from 1932 to 1939. This increase reflected the manufacturing production; the share of total industrial production reached to 35.8% at the end of 30s while this share was 26.2% at the beginning of 30s.

While inward-looking, protectionist and controlled policies were being implemented, the first Five-year Industrial Plan was carried into effect in 1934. At the same year, Sümerbank and Etibank, which were public economic enterprises, were founded. Consequently, an impressive increase in the production of light costumer goods (e.g. sugar, wheat and textiles) was generated. Meanwhile, traditional companies were using state support in order to produce some intermediate goods such as iron, steel, paper and chemical goods (Tekeli and İlkin 1977).

To conclude with, it is notable that the balance of foreign trade was positive in this period, for the first time in history, owing to the restriction in imports (Boratav 2008).

3.2.3. World-War and Internationalisation of Capital (1940-1945 and 1946-1953)

During the Second World War, substantial fall in almost all production activities and obstruction in capital accumulation processes were generated as simultaneously happened in the world economy. On the one hand, this period can be defined as a *stoppage period* due to the stoppage observed in economic indicators; on the other hand, this was an incubation period herewith it constituted new power and class balances (Boratav 2008, 81-83).

Big landowners of various Anatolian cities had opportunity to reach high profit rates and plunder various establishments and real estates during the war years. While this process changed the political balance and class structure of the country, new central cities emerged and reached the higher population growths in the Central Anatolian Region (Ankara and Eskişehir) and the Çukurova Region (Adana) (Eraydın 1988).

After the Second World War, in the period from 1946 to 1953, Turkish economy was affected by the main characteristics of the world economy. More liberal policies were implemented, which based on the *internationalisation of capital*. The state-led industrialisation strategy was transformed to a new economic strategy which was based on liberalisation and integration into the world market by means of the agricultural exports. In other words, protectionist and introverted policies were replaced by the free trade and open economy policies (Boratav 2008; Öniş and Şenses 2007).

Under the effect of internationalisation policies,[8] Turkey received foreign aid (under the Marshall Plan) and joined the international organisations – the World Bank (WB) in 1947, the General Agreement on Tariffs and Trade (GATT) in 1951, and North Atlantic Treaty Organisation (NATO) in 1952.

Boratav's definition (2008, 93-95) of *different attempt to integrate into world economy* is based on several characteristics; namely,

- The transition to multi-party system and the first election in 1946, followed by the governmental party change in 1950 at the first time in the history of Turkey.

[8] The post-war period created a new type of international organisation that changed the governmental policies all over the world. The United Nations (UN) was established in 1945. While the UN Monetary and Financial Conference held in Bretton Woods in 1944, the International Monetary Fund (IMF) and the World Bank (WB) were founded in 1945. As a result of this process, the United States dollar became the world money, which means that the solidity and reliability of new system became dependent on the military and political power of the US.

- While the protectionist and inward-oriented economic policies – which are based on the balance of payments' equilibrium – were left, the export-oriented policies – which are based on the liberalisation of export – begun to be implemented at the second half of the 40s.
- The economy was dependent to foreign aids, credits and investments.
- The development policies transformed from the industrialisation program based on domestic market to the outward program based on the exports of agricultural products, infrastructure, mining and construction.
- The economy became foreign dependent owing to the chronic external deficit.

The Marshal aids increased the agricultural production rather than industrial production. While the share of agriculture in total GDP increased from 42% in 1947 to 45.2% in 1952, the share of manufacturing industry decreased from 15.2% to 13.5%. At the same time, the foreign aids and collaboration with the international organisation negatively affected the balances of export and import. In this period, Turkey turned into a deficit country as imports increased more than a hundred per cent while exports made steady (Boratav 2008; Öniş and Şenses 2007).

3.2.4 Stagnation and Import Substitution (1954-1961)

From 1954 to 1958, economic strategies turned into the ones applied in the former period of 1930s. The controls in foreign trade and the protectionist policies once more put into practice. When imports of certain goods were restricted, the import substitution policies started to be implemented. The stand-by agreement launched in 1958 and ended in 1961. As a whole, this period can be described in two concepts; *stoppage* and *re-adaptation* (Boratav 2008).

Liberal policies of the previous period were left in the mid-50s because of high inflation and foreign debts. Although the industrialisation strategies were changed radically, internal structure of manufacturing industry did not change. As the dependency to the imports of industrial inputs was still unavoidable, the economy was pressed for money by the reason of compulsory devaluation of monetary system. Within the year the *stabilisation program* and the *stand-by agreement* were undertaken (1958), one the US dollar rose from 2.8 Turkish Liras to 9 Turkish Liras. Decaying foreign credits and

limitation of public expenses were not adequate to regulate monetary system. As a result of collapsing monetary system, the volumes of exports (57.9%), imports (62.4%) and total international trade (60.5%) decreased (Kazgan 2006).

Concentration of industrial production in the metropolitan and central cities/regions was one of the main characteristics of this period. While the share of manufacturing industry in İstanbul increased 21 per cent, Ankara (5%) and Bursa (5%) also reached spectacular growths (Eraydın 1988). Meanwhile, the need of labour for manufacturing industry was fulfilled by a high rate of urbanisation and newly-emerged squatter areas (*gecekondu*) as happened in other late-industrialised countries (Eraydın 1988; Tekeli 1982).

3.2.5. Beginning of the Planning Period & Import-Substitution Industrialisation (1962-1979)

The conjectural congestion and recession which started in 1954 and ended in 1961was followed by a new phase of economic expansion. However, this period had different characteristics than the previous period (between 1946 and 1953). Boratav (2008) describes this period as *relatively open market based on agricultural production*. On the one hand, trade policies based on protectionism in foreign trade and enlarging domestic market continued; on the other hand, new approach based on state interference was applied in terms of economic policies. As a result, the country reverted gradually back to state interventionist policies (Boratav 2008).

First of all, the planning period in Turkish economy began with the First Five-year Development Plan, which was launched in 1963. Not only symbolically but also literally, long-term economic planning came into prominence in the political and economic agendas. Thus, central planning of the capital investments and resource allocation became a basic economic policy of the country. With the first Five-year Development Plan, the Import Substitution Industrialisation (ISI) and inward-looking economic policies were undertaken and the ISI was evidently declared as a main industrialisation policy (see SPO 1993).

The policies applied during the 60s and 70s were differed from the policies previous periods. Even though general policies of 1960s look like similar to the ones in 1930s and the second half of the 50s, the content of the industrialisation policies,

distribution of the investments and sectorial priorities were completely different (Boratav 2008; 118-9). The import substitution of common goods in the 30s started through governmental purpose. But it was applied after the 1954 crisis just because of international barriers of foreign trade. The leading role of the ISI policies after the First Five-year Development Plan differently caused fundamental changes in national economy and reshaped the socio-political structure and social distribution of wealth.

Two more five-year development plans[9], covering the period between 1968 and 1977, were prepared in this time. Second and third five-year development plans continued to reinforce the ISI policies with the emphasis on enlarging governmental investments, manufacturing consumer goods and high tariffs. The key feature of all those plans was to build up a significantly protected domestic market. The main characteristics of this protected market are listed below (Boratav 2008 and Eres 2007):

1. A relatively closed economy with high tariff barriers,
2. Overvalued currency in the service of national industries' imported input demands,
3. A regulated financial system with negative real interest rates,
4. A high reserve requirement and liquidity ratios controlled by government,
5. An enlarged domestic market supported by widespread consuming of durable goods,
6. A compromise on the part of the capitalist class in their struggle against the working class.

The main goals behind the protectionist and inward-looking economic policies implemented during the 60s and 70s (İsmihan and Özcan 2006; Boratav 2008; Boratav et.al 2000) are made up of (1) keeping the inflation low, (2) catching the high economic growth rate, (3) attaining the balance of foreign-trade, (4) increasing the public investments (by use of *State Economic Enterprises (SEEs)* an (5) supporting the private industry.

These goals listed were clearly interacted with the international context. The world economy was drifted into a long-term stagnation after the oil-crisis in 1972. Sharply increasing petroleum prices affected all the economies. Turkey, as other late-industrialised countries, attempted to overcome the crisis by using short-term debits (Boratav 2008). While public investments were directed towards the production of

[9] Five-year Development Plans are elaborated in detail in the section 3.2.3.

intervening goods and consumer goods, the ISI policies were seen as a way to foster industrial production and systematically applied during the 1970s. This was supported by manufacturing quota policy s while high tariffs were under state control (Yeldan 2005). However, at the end of the period, in 1978, foreign trade deficit and short-term debts attained a huge amount, which was a starting point for the balance of payment problems (Kazgan 2006).

Although increasing oil prices and limits in manufacturing production affected the world economy negatively, the short-term credits reflected the economic indicators positively. Main indicators can be listed as following (compiled from Boratav 1993 and 2008; Şenses 1994; Eraydın 1992; Eres 2007; Özbolat 2008; Boratav, Yeldan, Köse 2000):

- The annual growth rate of GDP increased 6.6% from 1962 to 1976.
- The share of manufacturing industry in total GDP was 14.1% in 1963 increased to 19.1% in 1979. As a result, the growth rate of manufacturing industry in total GDP increased from 17.5% to 21.2%.
- The average growth of manufacturing output was 7.5% from 1965 to 1979.
- The share of manufacturing products in total export increased from 13-18% to 20-39% respectively the 60s and 70s.
- The share of agricultural production in total GDP decreased from 36.5% to 27%.
- Annual growth of manufacturing industry observed as 9.6% while it was 3.9% for agricultural industry.
- The share of the service sector in total GDP rose from 46 per cent to 51.7 per cent from 1962 to 1976.
- The labour wages were relatively higher than other late-industrialised countries (e.g. the average wages in Turkey were twice more than Taiwan).

The industrial strategies, consumer demands and sectorial needs changed explicitly in this period (see Table 3.2). While the export capacity of manufacturing industry was very limited, the demand in domestic market significantly enlarged. With this beneficial market effect, not only the production of consumer goods but also the productions of intermediate goods and investment goods were increased. From 1963 to 1980, while the share of light consumer goods decreased from 66.7% to 39.8%, the share of intermediate goods increased from 20.5% to 42.6%. In addition, a spectacular growth was on the rise in the share of durable consumer goods. The key factor of this rapid growth

was the impact of the State Economic Enterprises (SEEs), which focused on the industries of copper, aluminium, petrochemical products, construction goods, iron and steel (Boratav 2008). In the period of 1963-1980, the public share of intermediate goods in total production increased from 36.5% to 64.5%, while the share of light consumer goods decreased from 53.3% to 29.2%. Thus, the direction of public investments was changed and, moreover, reflected to the structure of manufacturing industry. As the public production served the consumer goods to private industry, the costs of consumer goods were kept low. All these policies, eventually, accelerated the growth in private sector.

Table 3.2. Structure of Manufacturing Industry (1963-1980)

(Source: Boratav 2008, 133)

THE STRUCTURE OF MANUFACTURING INDUSTRY										
	Share of Population (%) (by type of goods)					Share of Labour-Force (%) /by type of goods)				
Years	Light	Durable	Interme-diate	Invest-ment	Total	Light	Durable	Interme-diate	Invest-ment	Total
1963	66,7	4,4	20,5	8,4	100	65,4	3,7	18,7	12,2	100
1980	39,8	10,1	42,6	7,5	100	54,2	11,1	24,8	9,9	100
THE STRUCTURE OF PUBLIC MANUFACTURING INDUSTRY										
Years										
1963	53,3	0,4	36,5	9,8	100	57,0	0,2	24,1	18,7	100
1980	29,2	0,1	64,5	6,2	100	53,9	2,3	33,3	10,5	100

As a result of the rapid growth in manufacturing industry, the size of Turkish manufacturing value added was ranked in fifth in the second half of the 70s among all other late-industrialising countries (behind China, Mexico, India and South Korea). However, there was a number of problems can be sketched (Şenses 1994, 53-54):

1. A highly inefficient industrial structure emerged. Export was dominated by a handful of agricultural production – which was far below cross-country norms (4.5% of GNP) - while long-period production was instrumental in the creation of sustainable rents (one estimate of the extent of rents arising from the system of import licences put the figure as high as 15 per cent on GNP in 1968)
2. While real wages exhibited a strong upward trend as a reflection of the demands of a growing and increasingly labour favour, relative factor prices were highly distorted owing to the maintenance over long periods of the time of overvalued exchange rates and severely negative real estates of interest under the deep financial repression.
3. In the late 1970s, foreign-dependent industrialisation and world crisis led to the emergence of macroeconomic instability and the balance of payment difficulties.

The short-term credits obtained from international financial markets resulted in the deterioration of external debt indicators and the complete loss of international creditworthiness.

In the period of 1962-1979, the model of import-substitution industrialisation faces off various bottlenecks and inefficiencies, which were mostly dependent to the world-crisis. Even though commercial capital owners made a big volume of profits, Turkish economy could not create enough savings and investments in order to reach one more advanced level of the world economy (Boratav 2008). Therefore, the expected shift in major policy was undertaken in the beginning of the military regime. The structural adjustment launched with the support of military regime and continued systematically until the parliamentary regime reinitiated (Eres 2007, 119). New economic regime and its basis of export-promotion formation are elaborated in the following section.

3.3. Neoliberal Agenda of Turkey: Stabilisation Programs, Integration to Financial Capitalism and Neoliberalisation in the post-1980

The liberalisation of the Turkish economy after 1980 (until the 21st century) can be evaluated in three parts (Boratav 2008, 145-206): (i) between 1980 and 1988 it is represented by the Stabilisation and Structural Adjustment Program (SSAP) and the counterattack of the capitalist class; (ii) between 1989 and 1994 it is represented by the populist policies and convertibility, and (iii) in the post-1994 period it is represented by the domination of the international finance capital. Boratav (2008) also highlights that these periods are in line with some big economic movements, which are based on expansion and recession. The post-1980 period has consecutive cycles which are realised 4-5 years economic recessions ad expansions. These cycles go with the economic crisis and the shifts in financial capitalism.

Following the Boratav´s approach by identification of economic expansion (between 2002 and 2006) and following economic crisis (2007), the post-2000 period under the ruling power of *Adalet ve Kalkinma Partisi* (AKP) [in English *Justice and Development Party*] can be divide into two sub-periods; namely, (1) between 2002 and 2007 where counter hegemony established by means of institutional restructuring and (2) from 2008 to today it can be represented by decentralisation of capital and centralisation of political power in the single hand.

Table 3.3. Detailed periodisation of Turkey after 1980

Period	Characteristics
1980-1988	-Liberal economy under the military regime; -Implementation of the SSAP (24th January Decisions) -Counterattack of the capital -Boom years of ANAP -Period of economic expansion (first cycle after 1980)
1989-1994	-Shift towards populism and convertibility; -Liberalisation of capital account and capital flows; -Accelerated regulation for the open-market -Period of economic expansion (second cycle)
1995-2001	-Integration into financial capitalism; -Customs Union and expanding international trade; -Fastened privatisation and labour market regulations; -Period of economic expansion (1995-1997) (third cycle); -Period of economic recession (1998-1999) (fourth cycle);
2002-2007	- Regulations allowing accumulation by dispossession - Single-party ruling power - Institutional restructuring & establishment of counter hegemony - Period of economic extension (fifth cycle)
2008-2018	- Neo-Con liberalism - Decentralisation of capital under the single-handed power - New bourgeoise for 'new' neoliberalism - Accumulation by dispossession

3.3.1. Stabilisation and Structural Adjustment Program: Counter Strike of Capital (1980-1988)

Consequences of the great depression in 1970s, which fostered the implementation of liberal de-regulations globally, became clearly visible in Turkey in the late 1970s. The average growth in manufacturing investment declined 7.5 per cent from 1963 to 1977 and 10.2 per cent from 1977 to 1980 (Şenses 1994, 53) while the growth in GDP per capita decreased from 6.2 per cent to 1.2 per cent. Compared to the two former periods (1962-1976 and 1977-1980), growth rate decreased from 2.8 to 0.3 in agriculture, from 6.7 to -5 in construction and from 7.5 to 6.1 in service industry (TUIK, 2000). Global recession reflected to turkey and got visible in almost all macroeconomic indicators. With the supplementary effect of the recession, Turkish manufacturing industry failed to create a higher skill or technology-intensive production either through accessing to new markets or through moving into higher value-added segments in existing markets/value-chains during the 80s (Amsden, 1994).

Following the downhill economic indicators, military government found solution to approach and collaborate with IMF. The Stabilisation and Structural Adjustment Program (SSAP - also known as the *24th January Decisions*) was introduced at this moment alongside a great deal of domestic political instability. Primarily, it put into action as a short-term stabilisation program under IMF control to cope with the increasing inflation and severe balance of payment difficulties (Şenses 1994). Therefore, first acts were aligned with these priorities (e.g. reduction of the labour wages, intensives to increase export capabilities, minimising labour costs etc). The programme was fully supported by the World Bank (WB) and International Monatary Funds, as well as the popular president Turgut Özal (Boratav, 2008). Furthermore, Senses (2016) underlines that Turkey was one of the first testing countries of this joint WB-IMF programme, which involved radical transformation processes including the cancelation of industrial projects, liberalisation of foreign trade and of the domestic financial sector. The joint programme, hence, is so-called *Washington Consensus*.

Through the implementation of the SSAP, capital accumulation has transformed to a new phase accompanied with the transformations in economic, political, institutional and spatial structures where the systematic deregulations led to a radical transformation from import substitution under state direction to a global ideology of (neo)-liberalisation. The SSAP can be elaborated within two phases: liberalisation under the military regime (1981-1983) and the boom years of ruling party, ANAP (1984-1988). The right-wing party, ANAP, and its leader Turgut Özal drew a new route for the republic and facilitated the exploitation of capital over working class. Boratav (2008) considers this as a counter strike of capitalist class generated and protected with military support. The establishment of new social class (new bourgeoisie) was aligned with the entire economic and political agendas including the cuts in social rights, new deregulations of labour markets, systemic modes of regulations and so on (Özbolat 2008).

The 1980s can be considered as recovery period for the most countries. Eraydın (1992) states that advanced capitalist countries re-regulated the production circles and increased the value added by means of new technologies, new distribution channels and reduced costs of labour forces. This approach was not applicable for the late-developed countries including Turkey. As these countries were not able to afford to transfer of these new technologies, more commonly based on the guidance of IMF, they focused on the regulation in labour market and in monetary and financial policies, which were totally aligned with the export-oriented industrialisation strategies. Radical transformation from

import substitution under state direction to export-oriented open-market conditions were accompanied by the deregulations in interest and foreign exchange rates, as well as the liberalisation of import and export regime. These policies primarily gave prominent roles to the service and fiscal enterprises at domestic level (Table 3.4). The first orientation stage of these radical transformations was linked to different international agreements; namely, the three-year stand-by agreement with IMF (covering the period from 1980 to 1983), the Structural Adjustment Loans (covering the years between 1980 and 1984) and finally three agreements for the Sectorial Adjustments Loans provided by World Bank.

Table 3. 4. The changes in the employment structure of Turkey, 1980-1990
(Source: Calculations based on the data presented in Özbolat 2008, 107)

Economic Activity	**1980**		**1990**		**Growth Rate**
	Employ.	**%**	**Employ.**	**%**	**1980-1990**
Agriculture, Hunting, and Fishing	11105000	60,5	12547796	54	0,13
Mining and Quarrying	132000	0,7	130823	0,6	0,01
Manufacturing	1976000	10,8	2781717	12	0,41
Electricity, Gas, Water	**33000**	**0,2**	**80324**	**0,3**	**1,43**
Construction	765000	4,2	1184242	5,1	0,55
Wholesale, Retail Trade, Hotel Services	**1084000**	**5,9**	**1854306**	**8**	**0,71**
Transportation, Communication	531000	2,9	775427	3,3	0,46
Financial Inst., Insurance, and Other Bus.	**294000**	**1,6**	**541742**	**2,3**	**0,84**
Social Services, and Personal Services	2425000	13,2	3344033	14,4	0,38
Total	**18345000**	**100**	**23240410**	**100**	**0,27**

From 1980 to 1988, mode of accumulation was determined by the profit-oriented liberal view. On the one hand, domestic credits were repressed through short-run stabilisation policies and in this way the excess demand was controlled domestically. Following series of policy reforms aiming at achieving a long-term stability have changed the structure of economy towards an outward-oriented and privately dominated market structure. This restructuring not only ended up a strong shift in the orientation of the domestic economy, but also drastically amended the national labour market. Under the military authoritarianism, working class was depoliticised and demobilised despite the rural economies encountered severe erosions. The military government suspended the unions and restrained the wages. While real income significantly decreased, significant migration from villages to the urban industrial centres took place (Yeldan 1994). All these restructuring processes create the first "golden age" of the bourgeoisie under

neoliberalism: “the bourgeoisie proved itself capable of acting as a class: as a unified pressure group, it was instrumental in the instigation of the military coup” (Boratav, 2015, 3).

Table 3.5. Production, Accumulation and Distribution in Turkey (1980-1990)
(Source: Yeldan, 1994, 77)

		Stabilisation			**Growth via External Adjustment**					**Cyclical Growth *reform fatigue***		
		1980	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**
Production and Accumulation	*Annual Growth Rate*											
	GDP	-1,0	3,6	4,5	3,9	6,0	4,2	7,3	6,5	4,6	0,4	8,1
	Agriculture	1,7	0,1	6,4	-0,1	3,5	2,4	7,9	2,1	8,0	-11,5	11,3
	Manufacture	-6,0	9,5	5,4	8,7	10,2	5,5	9,6	9,9	1,8	3,2	10,1
	Commerce	-4,1	7,4	4,6	6,9	8,0	4,6	9,4	9,9	3,8	5,8	12,1
	Finance	1,8	1,9	1,6	0,5	4,5	3,5	3,7	3,6	4,7	1,8	3,5
	Private Manufacturing											
	Productivity[a,b]	100	109	117	114	115	121	147	163	156	-	-
	Exports[a]	100	230	405	649	725	891	758	1107	1301	1144	1269
	Investment[a]	100	101	97	95	98	107	122	113	105	90	115
	Capacity (%)	51	62	66	69	72	73	73	75	75	75	76
Distribution and Prices	Wage rate[c]	100	107	103	94	78	72	63	79	61	74	-
	Real profits											
	Industry[d]	100	97	96	109	154	215	176	229	202	185	-
	Banking	100	120	94	167	293	279	476	662	708	485	611
	Real exc. Rate	100	104	115	125	141	136	130	109	109	93	70
	Interest (%)[e]	-33	2,9	7,8	6,7	-4,5	7,6	12,6	5,9	-3,6	-2,1	-3,1
	Producer Prices											
	Private man.	100	131	166	219	323	453	613	860	1546	2530	3637
	Public man.	100	131	165	213	311	451	576	702	1219	2033	3241
	Domestic terms of trade	100	92	84	87	88	87	99	-	-	-	-

a: Index (1980=100); b: Private Manufacturing value added per labour employed; c: Annual wage payments per labour in manufacturing; d: Total profits of 500 largest industrial firms; e: Annual average of the 1-year time deposits; f: Terms of trade between the prices received by farmers and the prices paid by them for current inputs and capital goods

To sum up the 80s liberalisation process in Turkey, three phases can be described as following (Yeldan, 1994, 76-78) (also see Table 3.5):

1. *Phase 1 (1980-1982)*: it is characterised by hesitant resumption of GDP growth, increase in manufacturing exports and decreasing private investments accompanied

with intensification of capacity use in the manufacturing industry. This period is a pure reorientation of economy toward foreign markets based on static stabilisation of the domestic and financial markets. The exchange rate was the main policy instrument for this phase in terms of profound cumulative real depreciation of 28 per cent.

2. *Phase 2 (1983-1987)*: it is represented by a sustained rapid growth in manufacturing industry. The export expansion and increase in productivity continued in this phase. While growth opportunities provided by the external economy were accelerated, the drastic fall in real wages and expansion of real profits manifest the prevailing mechanism of surplus extraction of this period. The Western lifestyle based on consumerism was outweighed.
3. *Phase 3 (1988-1990)*: political rationalities came to grips with economic rationalities of the markets. The limits of orthodox stabilisation based on price incentives and surplus extraction via wage suppression seem to have been reached, and the economy entered a period of cyclical growth. The faltering growth performance of the economy is accompanied by weakened managerial activity of the bureaucracy. The inflation rate gained momentum, which was not announced by the authorities, indeed.

During the 80s, the structure of capitalist class and production processes changed spectacularly. Liberalisation of import, additional incentives for export and devaluation based on flexible exchange rates took place. Labour incomes decreased relatively while commercial and financial renters started to make easy profit rather than industrial investors (Boratav, 2008). Turkish bourgeoisies took an active political role to foster the transition to the *low-wage* economy. This process was promoted with the emphasis on a universal motto; 'integration to world capitalism' (Boratav, 2000).

3.3.1.1. A Leap to Neoliberalisation: Financial Deregulations under the Military Protection

Deregulation of the mode of capital accumulation implemented under the military regime, which was meantime publicly justified with the propaganda programmes against the 70s politically leftist movements. As expected, this rhetoric accompanied with a

financial liberalisation covering the incremental variety of financial institutions and services. Financial deregulations, herein, refer to the decreasing control in the financial system to enhance financial deepening, which was also a byword/motto to facilitate the mobilisation of financial capital. Supporters of the financial deregulations claimed that the investment opportunities would grow faster by means of financial deepening and this would trigger a significant growth in the economy, (Kepenek and Yentürk 2001). Financial liberalisation in the early 80s can be understood by four domains: (1) interest rate liberalisation; (2) foreign exchange rate liberalisation; (3) capital account liberalisation; and (4) banking system liberalisation.

Interest rates were deregulated following the 24th January decisions in order to make exchange rates more flexible. Overall result of this deregulation was a big increase in loan rates. It was followed by a sharp devaluation in 1981 to adjust the exchange rate based on the international financial trends. These operations were conducted by the Central Bank, which was indeed fully subject to the demands of commercial banks. The liberalisation of interest rates accessed the previously anticipated level in 1988 with authorisation of commercial banks to set these rates freely while the Central Bank was still allowed to specify the maximum value (Şenses 1994). Also, other operations fostering financial liberalisations were notably connected to the interest rate liberalisation as the fact that *capital account liberalisation* and *banking system liberalisations* require flexible interest rates. However, the process of interest rate liberalisation has never been completely finalised because of the governmental interventions since the beginning of 1990s.

The policies of export-oriented industrialisation directly influenced the international trade policy; therefore, new requirements including the simplification of international trade raised in the national economic agenda. Foreign exchange rate liberalisation put into practice in these premises. Domestic demand was restricted owing to the aim of increasing the share of export in economy while domestic currency was being systematically devaluated. The military government offered an easy ground for several regulations in favour of capital like eliminations of registrations and licence requirements, tax repayments, income tax rebates, foreign exchange retentions, facilitated export loans and so on. Almost all the restrictions on import materials were removed in 1983-4 (Uçar, 2007). The exchange rate liberalisation was strengthened in 1984 with the *Legal Decree in 1984* (nr. 30), which was followed in *1989* (by nr. 32). Eventually, the capacity of international trade spectacularly increased during the 80s. Moreover, the legal

facilitations continued in the following years; namely, the participation in the Customs Union, mutual trade agreements with third countries and incentives for importing specific goods etc.

The Capital Markets Law came into practice in 1981 to regulate legal and institutional structures of the market instruments. Then, the *Capital Market Board* was established in 1982 in order to re-regulate the authority on the market activities (TCMB 2002, 11). Following these important regulations enhancing capital account liberalisation, the major step was taken in 1984 by liberalising the exchange rate regime with the *Legal Decree (nr. 30)*. This step was strengthened by the establishment of the İstanbul Stock Exchange in 1986. Eventually, the final step was taken by the Legal Decree in 1989 (nr.32) (TCMB 2002, 12-14).

The establishment of Saving Deposit Insurance Fund in 1983 was an important decision for the banking system liberalisation. Afterwards, in 1985, commercial banks were allowed to accept foreign currency deposits; and to keep the foreign currency under the control of the Central Bank. This regulation, which is known as the *First Banking Law*, also allows external auditing the banking system. Furthermore, commercial banks gained a right to fix their exchange rates within a 'narrow band'. Fast banking regulations of the 80s achieved the establishment of the *Foreign Exchange and Banknotes Markets* in 1988 in order to protect and sustain these regulations. This process was completed with the regulation that allows foreign exchange transactions and capital movements in 1988 (TBB 2005). Within the financial bottleneck that was experienced towards the end of the 90s, *the Second Banking Law* came into practice. This law overly focused on the standards of the European Union and its financial regulations.

Financial deregulations created a business environment relatively more independent from the economic bureaucracy, but further dependent to the newly-emerging rent-seeking capitalist class. Personal relations with high level politicians became instrumental to manipulate financial markets and created asymmetrical advantage for some specific enterprises. Additionally, as Boratav (2015) highlights, degeneration into widespread corruption took place and equal dissemination of resources became impossible.

3.3.2 Shift to Populism and Capital Account Liberalisation (1989-1994)

The period of coalition governments started in the end of the 80s, which accompanied by a slowed trend if neoliberalisation. As the fact that the first biggest wave of labour demonstrations (so-called "*spring protests*") since the 1980 military coup took place in 1989, government intended to calm down the social pressure and increased the salaries of public workers 142 per cent. As expected, this increase reflected to the private industries and Turkey witnessed a notable increase in wages/value-added ratios. This does not only cause a drastic deficit spending, but also generalised undeclared works in spite of rising unemployment rate (Boratav, 2008).

Populist policies and unstable political structure made impossible to follow the IMF's stability objectives. Public deficits and high inflation, which were inherited from the previous IMF-WB conducted period based on the unique focus on the stabilisation process rather than required reforms of the IMF-WB programmes, notably increased (Senses, 2016). Government tried to address upcoming crisis with a deepened capital account liberalisation. This created a debt chain where banks borrowed in foreign currencies and lent to the government and companies in high interest rates. In this way, banks and rentiers restarted to gain high profit while industrial and commercial an indebted household almost fully lost their resilience capacities (Boratav 2015). Further implementations towards neoliberalisation took place by means of strengthened open economy conditions. On the one hand, the share of financial sector in economy significantly increased; on the other hand, the integration into the world economy enhanced.

Increased control on the market mechanisms and distribution processes was followed the capital account liberalisation. In other words, implementation of the neoliberal policies started with the regulations in the international trade and extended towards to entire economy and all related capital flows. The planning-based protectionist policies, which had been applied by the peripheral economies with the target of establishing relatively independent industries, vanished step-by-step with the guidance of the World Bank and IMF. However, despite all the (de)regulations, stabilisation of the economy failed and remained an unstable economic (and political) environment. Boratav (2008) indicates two strategic choices as the basis of this instability; negligence of productive (particularly manufacturing) industries and unbalanced investment between

financial markets and real sector. It should be noted that both choices were actually part of the programme aiming at a reduced role of the state in production and liberalisation of foreign trade regime and domestic factor markets.

Influence of the international financial institutions on Turkish economy drastically increased in this period, namely; the International Monetary Fund (IMF), the World Bank (WB), and the World Trade Organization (WTO). In addition, Turkey participated in the Customs Union in the same period. Restructuring towards internationally open economy, already started since the early 80s, was strengthen. This can be considered as a reflection of the transformation in the world economy towards a finance-based regime of accumulation. Similar to other less-developed countries, this transformation was launched and controlled by the Bretton Woods institutions (Boratav 2008 and 2015).

Turkish economy was hit by a structural crisis in 1994. Uncontrollable public debts, engaged big-scale infrastructure investments, instability in financial markets, lagging exports, political instability, pending tax reform and the Gulf Crisis induced in this crisis (Keyder, 2008). The crisis led a new wave of structural adjustment policies and the "*5th April stabilisation programme*" put in the action. This program originally aimed at reducing the tax debts and solve the fiscal deficit through the drastic public cut and privatisation. The 5th April programme offered a ground facilitating the neoliberal regulations (e.g. the privatisation of public enterprises, selling the public goods, introducing temporary taxes, cutting the public wages and rights, reducing agricultural incentives and so on) In addition, the 5th April programme went beyond the SSAP in terms of international trade and removed the remained limitations of capital movements. Increase in the spectrum and variety of international resources positively reflected to the exchange rates and raised rapidly the arbitrage profits. This triggered an extended phase of the golden age of financial capital and domestic rentiers (Boratav, 2008, 174) and passed to another level with the Turkey's participation in the Custom Union.

Following the banking law put in action in the early 90s and the establishment of the *Banking Supervision and Regulation Agency* (BSRA), a new financial era started for Turkey. Correspondingly the labour markets were deregulated and social rights of working class cut drastically. Moreover, government once again cut the social rights and particularly prevented the exercise of trade unions rights (Boratav, 2008). Finally, the *spring protests* and rising unemployment provided a new rhetoric for government to accelerate another neoliberal policy: privatisation!

3.3.2.1. Privatisation and Downsizing the Public Sector

Global ideology of neoliberalism always aims at increasing competitiveness in the hypothetically public-free market in order to enlarge the open market conditions. For this purpose, less-developed countries including Turkey are strongly recommended to apply systematic privatisation by the international regulators. Turkey joined in this trend in the mid-1980s. In this respect, two types of privatisation can be mentioned: one is an active privatisation based on the direct sale of the state economic enterprises; and the second one is a passive privatisation aiming to decrease the share of public sector within the economic activities. Yeldan (2005) points at the main purposes of both ways of privatisation in relation to five economic purposes:

> (referring to a report of Morgan Guaranty Bank in 1996) the privatization master plan would seek: (i) to transfer the decision making process from the public to private sector to ensure a more effective play of market forces; (ii) to promote competition, improve efficiency an increase the productivity of public enterprises; (iii) to enable a wider distribution of share-ownership; (iv) to reduce the financial burden of the state economic enterprises on the general budget; and (v) to raise revenue for the treasure (Yeldan 2005, 12).

The Republic of Turkey Prime Ministry Privatisation Administration (2010) underlines the privatisation as "one of the fundamental tools of the free market economy", which is a common rhetoric of the neoliberal ideology. The regulations allowing and facilitating the privatisation of public goods put into action in 1984; however, actual privatisations mostly took place during 1990s. By the legislation in 1994, *Privatisation Law No. 4046,* the spectacular diminishing in manufacturing industry started. Also, additional programmes put into action with emphasis on the increasing of international trade and improving markets competitiveness. This law was justified by the common neoliberal rhetoric and these rationales directly mentioned in the law, namely: (1) complication of the administrations of national and supplemental budgets and their properties, (dams, lagoons, highways, hospitals, ports, etc.) (2) monopolised Public Economic Enterprises; (3) decreasing profit rates of public enterprises (Privatisation Administration 2010).

Privatisation became an official ideology in 1985 with the emphasis on a rhetoric 'improving efficiency in production and reducing excessive employment and waste in the state enterprise system. Yeldan (2005) identifies this as the fact that "this overall approach

was based on the neoliberal dogma… (because) the private capital is often nurtured by state-support itself" (Yeldan, 2005, 11-12). Eventually, the big privatisation wave launched in 1991 was mainly beneficial for government to pay public deficits. In addition, the business groups close to governor parties took advantage over this trend and new bourgeoises class emerged with clear support of government. Moreover, corruption reached to a new level and the concept 'siphon' entered to the economic terminology of Turkey where it refers to stealing all the capital and other values from the privatised enterprise without any efficient investment. These enterprises were mostly re-publicised afterwards and costed a fortune for public economy (Boratav, 2008). Furthermore, the state investments provided a type of guarantee for the private sector's viability with an excuse of supporting economic life and capital accumulation. At the end, *siphon companies* continued their economic activities and corrupting the public goods became a routine (Yeldan 2005).

Table 3.6. Gross Income of Privatisations, 1986-2011
(Source: Privatisation Administration 2010, 3 & 2020)

	Block sale (billion)	Asset sale (million)	Public offering (billion)	Transfers (million)	Total (billion)	Av. per year (million)
1989-1997	1.8	497	1.3	25	3.6	400
1998-2002	1.8	208	2.2	274.8	4.4	900
2003-2011	22.7	7	4.9	421	35	4
2012-2019	-	-	-	-	27.3	3.4

* All values are rounded (the US dollars)

Eventually, five common privatisation methods have been used in Turkey; namely, (i) sale, (ii) lease, (iii) transfer of management rights, (iv) a share adequate to rule without ownership, and (v) income sharing model. Sale method also includes two ways; 'asset sale' and 'sale of shares'. Herein, the asset sale means a "transfer of production and service units and other assets of enterprises in return for a price" (Privatisation Administration 2010, 10). In a period between 1986 and 2009, the block sale method was relatively used more; since then, main method shifted to the asset sale.

3.3.3. Enhanced Financial Capitalism and Increase Foreign Investment (1995-2001)

Turkey, during the 90s, had an instable economy based on the populist implementations and fluctuation in inflation, as well as economic recessions. In detail, Turkish economy was in recession from 1995 to 1997, followed by a year of economic expansion in 1998-99 and finally an excessive crisis took place in 2001. National economy challenged with high inflation rates in these years. Economic issues reflect the political agenda where elections-oriented populist policies started to define the mainstream political movements. This chaotic atmosphere facilitates the IMF intervention toward the end of 20th century. A consensus between bourgeoises and government were achieved to steer towards a more radical neoliberal direction (Boratav, 2010). This tendency got stronger at the end of the 20th century with the crisis covering the period of 2000-01.

Following the two-year period without working with the IMF in 1996-97, Turkey agreed with the IMF in mid-1998 and engaged to a new agreement on monitoring short-term economic policies, which indeed turned to a starting point of ten years of continuous interactions with the Bretton Woods Institutions (Boratav 2015). In following year, the 17th stand-by agreement was signed with the IMF; in this way, one of the major stabilisation programmes of Turkish economy took place. This agreement was followed by liberation of the exchange-rates and Turkey officially removed almost all the barriers of foreign investments on the declared purpose of controlling high-rate inflation. This, de facto, positively reflected to the macroeconomic indicators at the first instance. Turkish economy grew six per cent in 2000 and inflation-rate started to decrease. However, these amendments were not adequate to prevent the crisis in 2000-2001 (Kazgan 2006, 449). Ironically, government agreed once more with the IMF to deal with this crisis and uninterrupted agreements were signed regularly in the period of 2003-2008 (Boratav, 2008).

Turkish neoliberalisation, indeed, have always been under the strong influences of the IMF and the WB; in addition, influence of the European Union (EU) increased starting from the mid-1990s. In spite of all these engagements, economic performance remained poor in the 1990s, which is so-called ‘the lost decade’ in some sources (Senses, 2016). Under the circumstances of the waves of crises and recessions, in 1998, the

coalition government once again adopted a radical IMF programme; in addition, a former bureaucrat of the World Bank, Kemal Dervis, was brought to take over the economy. Dervis' programme was in fact more comprehensive than the previous anti-inflation programmes: "the IMF and WB programme implemented by Derviş incorporated not only the standard anti-crisis austerity recipe of the IMF, but also a comprehensive structural adjustment component" (Boratav, 2015, 4). In spite of this comprehensive content, the most emphasised dimension of the Dervis programme was in fact an international motto of neoliberalism: *the state to withdraw from the economy*.

Main purpose of the programmes of the IMF and the WB was not only to withdraw the state's power, but also to enhance the integration to the international financial capitalism. A wide range of deregulations took place and barriers of foreign investments considerable removed. However, Turkish economy did not perform well in this period though it cannot be called as a downturn. On the one hand, inflation rate started to decrease for the first time since the 1980s; on the other hand, per capita GDP and industrial production decreased almost four per cent compared to the level in mid-90s. Compared to the end of the 1980s, inflation rate increased from around 60s per cent to 80s per cent. Also, public deficit significantly rose, from 4.8 per cent in 1988 to 7.6 per cent in 1997 and 9.7 per cent in 1998. Economy policies intended to address these issues with capital inflows. Integration to international financial capitalism accelerated in this period. Annual export and import values approximately tripled in the end of the 1990s compared to the end of the 1980s. Facilitations of international trade triggered the national foreign debt; namely, 41 billion dollars debt in 1988 increased 98 billion in 1998 and overcame the threshold of 100 billion in 1999. Consequently, the share of foreign investments withing national income notably increased in this period, from averagely 3.4 per cent in 1995-97 to 8.1 per cent in 2000 (Boratav, 2008).

Although few improvements taken place in the main economic indicators during the 1990s, Turkish economy could not escape the impacts of the global crisis that started in East Asia, spread to Latin America and finally accessed the advanced capitalist countries in Europe and Northern America. The crisis waves continuously affected Turkey in the 1998-2001 period. Akyuz and Boratav (2003) point at the IMF's anti-inflationary programme as one of the main reasons of the 2001 crisis. Turkey intended to address this crisis by rescaling the state and undertake radical deregulations. However, coalition conflicts and public resistance triggered another radical change in politics and a newly established party - a spill-over of the former Islamist party - called "Adalet ve

Kalkinma Partisi" (AKP) [*Justice and Development Party*], gained the absolute power and single-party rule period started in 2002.

3.3.4. Accumulation by Dispossession and Establishing Counter Hegemony (2002-2007)

Despite transition to neoliberalism started in the early 1980s, real progress started in the mid-1990s and took place further in the 21st century. Senses (2016) offers a structurally constructed explanation for this phenomenon. The IMF and the WB liquidated significant resources for supporting neoliberalisation where these resources were mostly used to provide an external support the neoliberal programmes rather than supporting the existing import-substitution drive in intermediate and capital goods. In other words, policies implemented by the IMF and the WB just created an accumulation process far from real production and very fragile in the cases of crises. This might have delayed the Turkish transition to neoliberalism until the 21st century where a shift in the mode of capital accumulation took place following the 2001 crisis. During the period of 2002-07, Turkish economy reached an average growth rate of 7.8 per cent. At this point, Boratav (2015) calls attention to annual capital inflows following the crises years of 1998-2002, which significantly contributed to economic growth. Similar to the recent past history, this rapid growth was cut by the 2007 crisis and repeating growth once again started during 2010-11. The short story of Turkish economy in the 21st century demonstrates the dependency of capital inflows from the world capital markets. Each interruption of the capital inflows repeatedly demonstrated how fragile the Turkish economy in general.

After AKP came to power alone in 2002, the government re-committed to the IMF and fully restored the trust to the Dervish programme although there was a common public opinion to get rid of the IMF after facing several crises under their supervision. However, it was indeed a lucky year with regard to the international economic environment. Following the crises and stagnations, international capital movements once again started to revive and Turkey appeared as 'an attractive magnet for international investors' (Boratav, 2015). In this conjuncture, Turkish economy was practically aligned with the preceding economic programmes. Macroeconomic programme was fully derived from the Dervis Programme. In addition, relations with the IMF and the WB were

enhanced with new credit agreements while fiscal policies fully adopted to the IMF targets and recommendations. The last stand-by expired in 2005; however, government signed new agreements uninterruptedly with in 2005 and in 2011 as well.

The economic and political agenda of Turkey during the early 21st century was determined by the structural reforms that intensely served to a structural transformation in the process of capital accumulation and related mode of regulations. These reforms were mostly legitimated by a rhetoric 'removing the populist interventions on Turkish economy'. However, those mainly served to remove barriers on domestic and global capital movements, rectification of the distribution relations in countenance of capital groups and committing the labour wages and agricultural inputs to market mechanisms. This was one of the final steps of destruction of the last pieces of welfare state mechanisms (Boratav, 2008). These changes created a short-term economic leap and positively reflected the macro indicators; e.g. Turkish economy grew more than seven per cent in the period of 2002-07. Balkan et.al. (2015) explain this growth with a known case of *accumulation by dispossession*:

> This process was initiated in the 1980s with the free-market economic policies of the Özal government (…) The structural transformation was a typical case of 'accumulation by dispossession' resulting in the redistribution rather than the generation of wealth and income. Its main pillars were privatisation, financialisation, the management and manipulation of economic crises, and the redistribution of state assets (Balkan et.al. 2015, 1-2).

The inherited economic programme was modified on the purpose of fostering the accumulation by dispossession. The Dervis programme and following stabilisation agreements signed with the Bretton Woods institutions originally involved the autonomous agencies for regulating capital flows within the economy. Main purpose of these agencies was to neutralise the capital inflows of rentiers to avoid unjust enrichment that is mostly accompanied by the political discrimination in favour of particular business groups. Although the Turkish economy was almost fully committed to the Dervis programme, these autonomous agencies and related regulations remained exceptions deregulated in 2002. Moreover, the legislation related to the Agency on Public Procurement and Tenders was amended 29 times until 2013 (Boratav, 2015). Some of these amendments facilitated to acquire wealth for some business groups through public procurement. Moreover, this process has been supported by fiscal regulations, which originally refer to trade liberalisation, liberalisation of interest rates and deregulation of

property rights. However, herein in the case of Turkey, it involved the deregulation of the financial system and making the system available for redistributing the financial capital (Balkan et.al. 2015). Although the capital groups flourished owing to 'accumulation by dispossession' historically know as interventionist, protectionist and nationalist with regards to economic policies, implementation of the neoliberal policies turned into a common motive for the government and these raising capital groups. (Boratav 2015 and Balkan et.al. 2015). Integration to the global economy significantly enhanced in this period; and in this way, 'actually existing neoliberalism' has been adapted a new form, co called 'conservative democrats'. Neoliberal transformations have razed the traditional roots of economic policies and actually existing neoliberalism established in the case of Turkey by means of state instruments.

While state mechanisms were utilised for capital transfer and generating new form of capital accumulation, a sharp withdrawal of state from some parts of economic activities took place. First of all, several control instruments, e.g. interest and exchange rates, foreign trade policy, public enterprises, public banking etc. were removed. Aligned with this process, political commitments to international organisations narrowed the policy space of the state. And eventually, the state assets started to be sold as all-out privatisation and their role of national growth, as well as of the equal distribution of wealth, were fully neglected (Senses, 2016). One of the crucial revisions applied to the economic programmes was to foster the privatisation of public lands, which allows the rent-seeking business to reacquire urban and rural areas. This expectedly created a massive capital concentration on government procurements and tenders and specific business groups took advantage over this opportunity and achieved continuous enrichment. Urban developers, contractors, real estate, construction companies and so on took benefit over these revisions and achieved at a significant wealth (Boratav, 2015). Drastically, over close to 80 per cent of all the privatisation carried out in the last three decades (Savran, 2015, 68); eventually, establishment of the new neoliberal era of Turkish economy was fostered by the public instruments through redistribution of state assets, as to say a neo-con liberalism took place in economic, political and ideological fields.

3.3.5. Neo-Con Liberalism: New Era for Advanced Neoliberalism (2008-…)

The recent economic history of Turkey is strongly dependent to the changes in the political structure. Since AKP came to power, the capital accumulation processes have drastically amended (also see section 3.3.4). These amendments have transformed the economy toward a more radical neoliberal direction. It is ironically similar to the initial steps of the liberalisation history of Turkey as it was undertaken by the ANAP government under the military regime. One of the common points of the AKP and the ANAP governments is the fact that both created a core group of businesses and got specific backup to support their power based on this newly emerging bourgeoisie. Following the words of Boratav (2015), this created the second 'golden age' of the bourgeoisie under neoliberalism.

Mode of capital accumulation acceleratingly transformed towards neoliberal policies in the 21st century. Open-market economic policies, once again similar to the implementations of military regime in the 1980s, have been aligned with authoritarianism as any serious opposition was rigorously blocked by the state apparatus. In addition, deregulations for the establishment of flexible labour market have materialised starting from 2004 as far as it was politically possible. Sub-contracting had become common in both public and private sectors (Boratav, 2015). The erosion of the social society together with trade unions and cooperatives was followed these deregulations. Also, wealth has been allocated to privileged groups through privatisation, financialisation and redistribution of state lands and assets. Total amount of sales and takeovers of public assets reached to approximately 63 billion dollars during the first two decades of 21st century, which was significantly higher than the entire sales of public assets (approx. 7.5 billion dollar) since the direct sale privatisations allowed in 1986 (Privatisation Administration, 2020). In addition, the Istanbul Stock Exchange and many investment banks were established in this period and partially privatised in the following years. This created a massive capacity for domestic and foreign investors. Moreover, a new wave of structural adjustment programmes with enhanced trade liberalisation and deregulation of property rights have been established. On the one hand, public spending on services like education, health care and social security were drastically cut; on the other hand, wealth and income were redistributed through tax reforms, special incentives, public

procurements and direct state supports. In this period, "Turkey had completed its transition from a mode of capital accumulation driven by import-substituting industrialisation to a regime based on global flows of goods and capital, popularly known as neoliberalism" (Balkan et.al. 2015, 2).

3.3.5.1. From a Perfect Model to Rent-Seekers' Economy

In the early years of 21st century a general class programme of capital was constituted aligned with the stabilisation programmes given by the Bretton Woods organisations (Boratav, 2015). This class programme raised a conservative and mostly rent-seeking bourgeoisie Moreover, this experience turned into a 'success story' and neoliberalisation of Turkish economy under the AKP-rule governments turned into a model for other Muslim countries as the fact that it is a consolidated neoliberal programme and offers oppressive instruments to build up a hegemony over entire society, particularly labour markets (Gurel, 2015). This provided a useful ground to collect supports from the big domestic capital groups and international finance capital. Moreover, international organisations (particularly the IMF, the WB, and the WTO) published several reports and celebrated these programmes because of its economic performance and policies aiming to change economic environment in regards to the completion of neoliberal transformation including 'fiscal discipline' and a 'well-regulated banking and financial system' (Balkan et.al. 2015). In other words, by the end of the first decade of 21st century, Turkish liberalisation process achieved at full support from national and international capital groups, as well as the international regulatory organisations. Furthermore, good economic performance was praised by internationally well-known publications like *Economist, the New York Times* and *Der Spiegel* with specific reference to "Turkey's rare ability to combine Islam and capitalism" and "as a model for other countries in the Islamic world" (Balkan et.al. 2015). In general, the economic transformation policies welcomed by the advanced capitalist countries and big business groups as far as following the neoliberalisation path while the authoritarian and conservative policies were tolerated.

Turkish economy was mainly shaped by the class-state relations during the 2010s by in fact applying the Dervis' neoliberal economic programme. The fast-growing economy thanks to the short-term consistent capital inflows in the early years of the

government, indeed, created a very fragile and vulnerable economy particularly dependent to the external inflows. This growth was not driven by profitable new investments and enhancing production opportunities, but by revenue obtained through the privatisation of public assets, lands and goods. In other words, economic growth, wherever available, was exploited by the self-interested and rent-seeking business groups (Balkan et.al. 2015 and Boratav 2015). A known legacy of neoliberalism is actually based on the removal of the rent-seeking business groups with the elimination of government interventions. "On the contrary, international as well as Turkish evidence show that new patterns of rent-seeking under neoliberal regimes (and consequently corruption) have flourished and the magnitudes involved may be significantly higher than those earlier" (Boratav 2015, 3).

The shift in the mode of capital accumulation automatically diffused to all economic areas. The agricultural reforms, which were a part of the WB structural adjustment programme, drastically changed the agricultural economic structure and left a large size of farmers to market forces (Senses, 2016). Moreover, a big rise in the proportion of services at the expense of agriculture has taken place. The average share of services in GDP increased from 37.4 per cent during 1963-79 to 54.2 per cent during 1980-2009 while agriculture decreased from 40.2 per cent to 15.6 per cent in the same periods. The share of employment in agriculture decreased from 35 per cent in 2002 to 27 per cent in 2004 and finally 18 per cent in 2019. Meanwhile, the share of employment in services increase from 54 per cent in 2004 to 57 per cent in 2019. Considering the slight change in the share of manufacturing employment over the same period, 27 and 25 per cent respectively (TUIK, 2020), this could be considered a structural shift from agriculture to services.

Neoliberal policies, opposite to common neoliberal rhetoric, resulted badly in terms of income distribution all over the world including Turkey. Senses (2016) positions Turkey within other countries directed by the Bretton Woods Institutions. Income distribution in Turkey positions between low inequality East Asian and high inequality Latin American countries, which is indeed much closer to the latter. The average income of the richest 10 per cent of the population was 14 times higher than of the poorest 10 per cent in 2010 (Senses 2016). The income of the richest 20 per cent reached 7.8 times higher than of the poorest 20 per cent in 2018 (TUIK, 2020). There was also a deterioration of functional income distribution once again justifying the pro-capital nature of neoliberalism. According to a total average public expenditure on health and education,

it covers 6.9 per cent of GDP in Turkey lagging behind not only the OECD average (11.9 per cent) but also comparable countries such as Spain (10 per cent), Portugal (12.2 per cent) and Greece (9.7 per cent) (Senses, 2016, 22).

Spatial uneven development and its evolution over years remain an open issue for in depth elaborations. There are interpretations assuming that the rise of new business groups affected the income distribution over space. Tanyilmaz (2015) draws attention to the fact that conservative bourgeoise was born and rose out of Istanbul in the neoliberal era where there would be an impact of this rising bourgeoise on spatial uneven development in the case of Turkey. Therefore, the evolution of regional uneven development and the impacts of liberalisations on this evolution need to be assessed in detail, which is available in chapter four.

CHAPTER 4

EMPIRICAL ANALYSES: UNEVEN REGIONAL DEVELOPMENT WITH REGARD TO TURKISH NEOLIBERALISATION

An empirical study on the regional uneven development in Turkey in relation to the Turkish liberalisation is presented in this chapter. It consists of statistical and econometric estimations, follow-up discussions, comments and concluding remarks.

Empirical studies are divided into four parts. The first part presents the historical changes in the main development indicators like population, migration, employment, Gross Domestic Products (GDP) etc. The second part elaborates the regional disparities in Turkey during the liberalisation periods (after the 1980s) through using well-known indices and coefficients (i.e. coefficient of variation, GINI index, maximum-minimum ratio and relative mean deviation). Also, the second part contains the Exploratory Spatial Data Analysis (ESDA) – i.e. global and local Moran's I statistics – that allows exploring the spatial dependence and autocorrelations between Turkish regions, as well as the clustering trends if any. Therefore, these two sections provide a brief historical perspective on the regional development and its spatial characteristics. Following these two parts, more insightful techniques are applied; namely, econometric analyses (i.e. spatial and non-spatial convergence analyses) and distribution dynamic approach (i.e. kernel density estimation). All the analyses take into account the periodisation presented in the previous chapter. Eventually, this chapter offers a fruitful pack of analyses to conclude the research questions of this thesis where we can clarify the historical connections between regional disparities and economic liberalisation in the case of Turkey.

4.1. Spatial Units, Periods and Data Collection

This section provides a ground for the empirical analyses and presents several technicalities; namely, spatial units on which analyses applied (the *Nomenclature of Territorial Units for Statistics* (NUTS) Level 2), periods of the analyses based on the periodisation of Turkish economy elaborated in detail in the previous chapter and data details including data collection process and information on the compilation and modification of the dataset.

4.1.1. Spatial Units: the NUTS & Scale of the Study

The empirical analysis focusing on the geographic regions includes the design of territorial units fitting to the objectives of the study. However, this design itself has some limitations based on the data sources. It is necessary to use one of the given spatial units based on the data availability; therefore, these units have to be adapted to the context of the study. In addition, there is an implicit risk which is known in the literature as *modifiable areal unit problem*: it is a problem connected to the high sensitivity of statistical and econometric results of different aggregations of geographical data, which can negatively affect the robustness of the analysis (Duque and Ramos, 2004). In spite of these limitations, this thesis has a relative advantage especially in applying the analyses at the *Nomenclature of Territorial Units for Statistics* (NUTS) level.

NUTS was defined for the first time by the EUROSTAT more than 25 years ago in order to provide a single uniform breakdown of territorial units for the production of regional statistics in the European Union (EU) Member States (MSs), which officially put into action in 1988. An important goal of this regulation is to minimise the impact of emerging changes on the availability and comparability of regional statistics (EUROSTAT 2004). Turkey recognised and applied the NUTS regions and established regional development agencies operating at NUTS Level 2 as a part of the EU integration process: "In relation to hastened accession process to European Union (EU) in 2000s, Turkey's territory was classified based on the Nomenclature of Territorial Units for Statistics. This classification forms the basis not only for the regional statistics but also for the national/regional development policy implementation, including harmonization with the EU" (Öztürk 2009, 2). Taskan (2006) emphasises the multiple objectives of the

establishment of NUTS levels; namely, (1) collecting and developing regional statistics; (2) analysing regional socio-economic structures; (3) designing regional policies; and (4) adapting to the European Union statistic system.

The Prime Ministry of the Republic of Turkey, the State Planning Organisation (SPO) and the Turkish Statistical Institute (TUIK) adapted the EU territorial model to Turkey within three levels: 12 regions are included in the Level 1, 26 regions in the Level 2 and 81 regions in the Level 3. NUTS Level 3 is a basis of these classifications, as well as data collection processes as they correspond to provincial divisions where historical data are available.

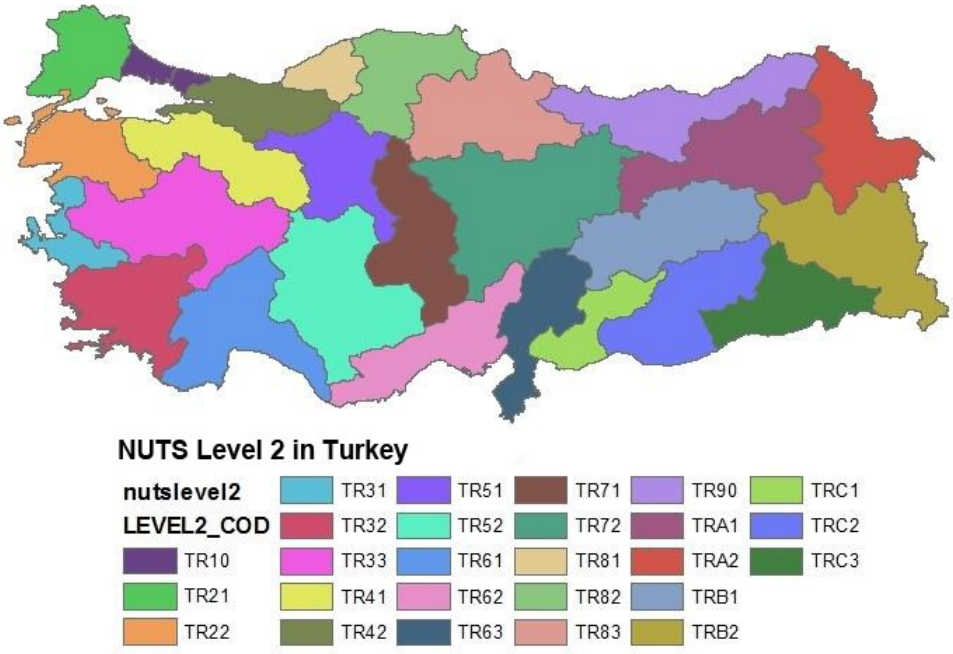


Figure 4.1. NUTS Level 2 regions in Turkey

On the other hand, regional development and regional planning are fundamentally related to the definition of the regional borders. Herein, under the general framework provided by EUROSTAT, definition of the NUTS regions is considered as a way to increase regional convergence and apply consistent policies at regional level. However, there is still an open debate:

> The effectiveness of regional development policies depends on how coherent regions are defined and how regional policy instruments are designed. Nonetheless, inclusion of both lagging behind and developed provinces in the same region may lead inconsistencies between regions' definitions and policies

> designed and implemented at regional level, such as investment incentives and pre-accession EU funds, which aim regional convergence. These inconsistencies, which are said to cause unfair competition among provinces, have triggered pursuit of new approaches to regional classification (Öztürk 2009, 2).

Following the quotation above, the NUTS regions need to be defined homogenously because this classification aims to equitably allocate resources among regions, which may provide efficient regional growth and convergence (Öztürk 2009). This homogenisation is especially aimed at the level 2 in the case of Turkey and criteria are defined as (i) common development problems; (ii) socioeconomic and cultural similarities; (iii) geographical unity; and (iv) inclusion of the sub-regions and geographical integrity (Taşkan 2006).

NUTS Level 2 (also mentioned throughout the thesis as NUTS 2), eventually, is chosen as a spatial unit of empirical analyses in this thesis (figure 4.1; also see appendix A for the details of provinces included in NUTS level 2). As explained before, these regions were built up not only to re-organise regional policy, planning and investment strategies, but also to accelerate regional development and facilitate regional convergence and homogenisation. Following these purposes, place-based economic programmes are currently applied at NUTS level, as well as the allocations of some parts of public funds and incentives. Ultimately, this scope fits our scope of this thesis as NUTS levels, particularly level 2, provides fruitful ground for the analyses considering the emphasis on the relationships between the NUTS regions, policy making processes and policy objectives.

4.1.2. Periods of the Study

In this study, all analyses are applied the periods which are defined in section 3.2 in this thesis. The years of breaking points are 1980, 1989, 1995, 2002 and 2008 theoretically corresponding to the changes in the capital accumulation processes of Turkey. Table 4.1 summarises the periodisation. It shows as well the fundamental characteristics of the chosen periods.

Periodisation of Turkish liberalisation is based on the work of Boratav (2008 and 2015). Eventually, all the empirical analyses in this chapter are supposed to be applied to the five periods; 1980-1988, 1989-1994, 1995-2001, 2002-2007 and 2008-2018. However, the last two period are merged and fourth period is defined as 2002-2018 as the

fact that there is a gap of two years (2002 and 2003) in the dataset. These missing years limit empirical analysis for this short period; therefore, this period is embedded to the following one. As the current ruling party, AKP, came into power in 2002 and significantly accelerated the neoliberalisation of the country. In this way, last period turns into an analysis of the AKP period and it additionally offers fruitful insights to understand this long-lasting single-party government.

Table 4.1. Periods of the study

Period	Explanation
1980-1988	-Liberal economy under the military regime; -Implementation of the SSAP (24th January Decisions) -Counterattack of the capital -Boom years of ANAP -Period of economic expansion (first cycle after 1980)
1989-1994	-Shift towards populism and convertibility; -Liberalisation of capital account and capital flows; -Accelerated regulation for the open-market -Period of economic expansion (second cycle)
1995-2001	-Integration into financial capitalism; -Customs Union and expanding international trade; -Fastened privatisation and labour market regulations; -Period of economic expansion (1995-1997) (third cycle); -Period of economic recession (1998-1999) (fourth cycle);
2002-2007	- Starting the process of accumulation by dispossession - Ruling power of AKP - Institutional restructuring & establishment of counter hegemony - Period of economic extension (fifth cycle)
2008-2018	- Neo-Con liberalism - Decentralisation of capital under the single-handed power - Accumulation by dispossession - New bourgeoise for 'new' neoliberalism

4.1.3. Data Collection

The raw, compiled and converted data used in the empirical analyses were gathered from the Turkish Statistical Institute (TUIK), the State Planning Organisation (SPO), the Banks Association of Turkey (TBB), the Privatisation Administration of Turkey (OIB) and the study of Karaca (2004). Particular variables originally used are GDP, employment, population, savings, public investments, export-import ratio and energy. The main data, GDP per capita, are only available at provincial level before 2004; in other words, there was no data available in time-series at the scale NUTS Level 2 for

the period between 1980 and 2003. Hence, provincial data (NUTS Level 3) are compiled and re-adjusted to NUTS Level 2. During this operation, values are fixed according to the prices in 1981 by using the consumer price index (CPI). These indices are regularly published by the Central Bank of the Republic of Turkey.

Quantitative analyses are applied into the periods which are defined in the elaboration of Turkish liberalisation in relation to the shifts in capital accumulation processes (temporal fixes); namely, 1980-1988, 1989-1994, 1995-2001 and 2002-2018. Simple techniques providing descriptive analysis (raw count, percentage, growth rate, distribution etc.) are also applied when needed. In addition, in order to measure and compare the regional (uneven) development, inequality indices (i.e. relative mean deviation, coefficient of variation, max-min ratio and GINI) are used. Furthermore, the unconditional convergence analyses (σ-convergence and β-convergence), as well as the conditional β-convergence analysis (with using population share, savings per capita, public investments per capita, energy/electricity consumption per person and export-import ratio) are applied in order to test their possible impacts on territorial convergence. Moreover, spatial convergence models are applied once again at NUTS 2; namely, Spatial Autoregressive Model (SAR), Spatial Error Model (SEM), Spatial Durbin Model (SDM) and Spatial Autocorrelation Model (SAC). Thus, the hypothesis communicated in the theoretical debates, where neoclassical/liberal expectations are located on one end and critical approaches on the other, are tested empirically. Finally, a newer approach so-called the *Distribution Dynamics Approach*, is applied for the same periods at NUTS 2. The distribution dynamics is based on the Kernel Density Estimation (KDE) and provides fruitful outcomes in relation to regional disparities and convergence/divergence tendencies.

4.2. State of Play: Basic Indicators at Regional Level

In this section, the distribution of some basic indicators by NUTS level 2 are presented in order to provide a brief overview regarding the regional structure in Turkey. Although data are mostly available in recent years, these indicators still provide adequate ground to draw a general picture. These indicators are net migration rate, total and sectoral distribution of employment, unemployment rate and gross value added.

Table 4.2. Net migration rate at NUTS 2 (‰)

(Source: TUIK, 2020)

	2008	2010	2012	2014	2015	2016	2017	2018	2019	Average
TR10	2,1	7,8	2,2	1,0	3,5	-4,8	-0,4	-13,9	7,8	0,6
TR21	14,5	7,8	10,5	13,4	14,4	16,0	14,8	9,3	6,5	11,9
TR22	5,3	1,7	5,1	14,5	-2,1	5,9	5,3	13,5	0,8	5,6
TR31	7,2	2,9	2,5	5,6	5,0	5,6	5,8	3,0	4,9	4,7
TR32	7,6	1,7	3,6	12,3	5,0	6,1	6,1	9,1	3,2	6,1
TR33	-4,4	-5,1	1,8	-4,1	-1,1	0,4	0,2	2,2	0,3	-1,1
TR41	13,1	5,7	4,2	6,2	7,4	8,3	8,5	0,8	5,9	6,7
TR42	12,0	5,3	6,4	9,3	12,1	12,3	11,9	4,4	6,4	8,9
TR51	6,7	10,4	4,5	7,8	9,7	3,2	5,9	-6,8	10,2	5,8
TR52	-4,8	-4,6	1,7	-0,3	-0,4	0,6	-2,2	0,0	-2,1	-1,3
TR61	14,9	8,4	10,6	8,5	9,7	3,3	5,1	8,9	9,2	8,7
TR62	-4,4	-1,5	-5,3	-2,8	-3,5	-1,8	-3,5	-6,2	-1,9	-3,4
TR63	-0,5	-3,8	-6,4	-3,2	-4,7	-1,0	-3,2	-2,2	-5,8	-3,4
TR71	-6,3	-13,8	-2,5	-11,1	-4,7	4,6	-2,3	12,1	-10,0	-3,8
TR72	-10,8	-5,9	-5,1	-3,8	-7,7	-3,1	-3,7	5,5	-7,5	-4,7
TR81	0,1	-8,1	-3,5	-7,4	-1,8	2,1	-2,1	5,6	-9,4	-2,7
TR82	3,6	-9,3	6,4	-13,6	-1,5	3,1	-0,1	60,3	-35,2	1,5
TR83	-8,2	-12,8	-5,7	-6,2	-6,1	0,6	-2,4	5,5	-2,8	-4,2
TR90	-2,2	-9,0	7,3	-1,8	-5,9	15,0	-12,6	30,5	-21,1	0,0
TRA1	-25,6	-10,6	-8,9	-11,3	-15,9	0,8	-18,4	0,9	-14,1	-11,5
TRA2	-26,6	-16,4	-21,3	-26,9	-25,7	-24,0	-23,7	-10,2	-17,8	-21,4
TRB1	-3,9	-7,0	-5,6	-5,7	-4,9	-2,6	-1,7	9,3	-10,0	-3,5
TRB2	-16,6	-10,8	-8,5	-17,5	-18,8	-21,6	-14,9	-5,8	-11,1	-13,9
TRC1	-3,2	-1,1	-3,1	-2,8	-2,9	-3,3	-2,8	-5,9	-3,8	-3,2
TRC2	-9,1	-4,7	-8,8	-7,0	-8,5	-7,6	-5,7	-5,1	-6,9	-7,0
TRC3	-10,3	-5,6	-10,9	-8,7	-14,8	-17,0	-1,7	1,2	-7,8	-8,4

The first indicator is the net migration rate, which is the net number of immigrants per thousand people, by regions from 2008 to 2019. This indicator potentially gives an idea on the labour movements between regions; thus, provide insights on the quantity of the labour markets. According to the average rate of net migration (table 4.2), there are 10 regions that received immigrants from other regions and eight of them achieved at approximately 5‰ or higher migration rates; namely, TR21 (Tekirdağ region), TR61 (Antalya region), TR42 (Kocaeli region), TR41 (Bursa region), TR51 (Ankara region), TR32 (Aydin region), TR22 (Balıkesir region) and TR31 (Izmir region). It is notable that these migration-receiving regions are concentrated at the metropolitan centres (i.e. TR61, TR51 and TR31) and their neighbouring areas (TR21, TR42, TR41, TR32 and TR22) (see figure 4.2). The most developed region in Turkey, Istanbul region (TR10) with 1.8‰

average, is not in the top group of this list based on the fact that it had negative rates in three years in row from 2016 to 2018 although the regions interacting with TR10 reached at high migration rates. This would be related to the new phase of capital accumulation, accumulation by dispossession (see sections 3.3.4 and 3.3.5), but this indicator alone is not adequate to claim this. This clearly needs further analysis.

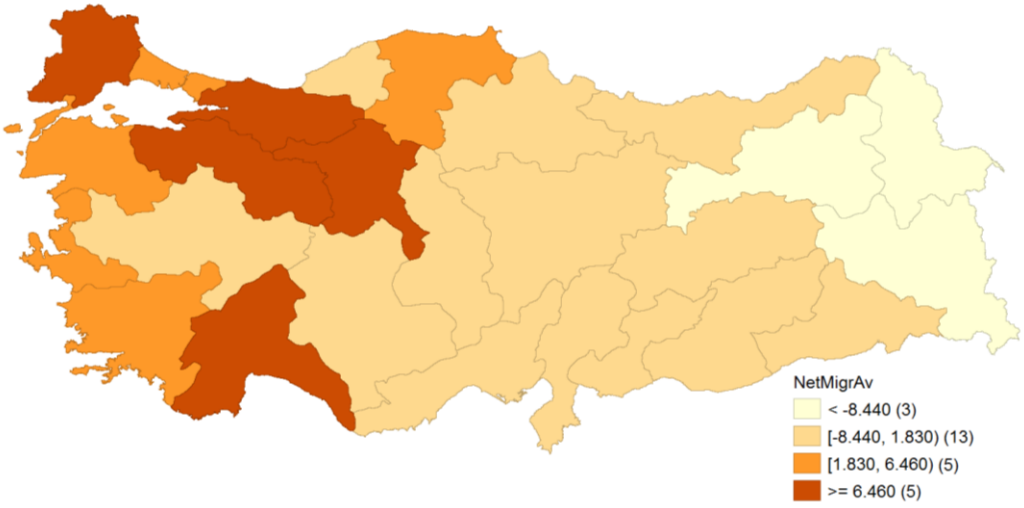


Figure 4.2. Average Net Migration Rate by NUTS 2 (‰) (2008-2019)

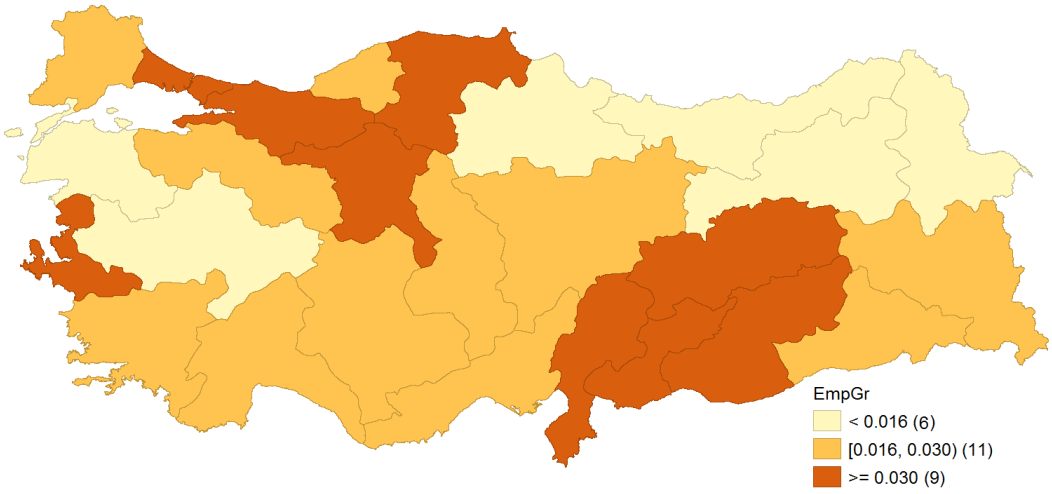
According to table 4.2, 16 regions have had negative migration rates during the last decade. Top group reached at approximately -5‰ or higher rates are TRA2 (Agri region), TRB2 (Van region), TRA1 (Erzurum region), TRC3 (Mardin region), TRC2 (Sanliurfa region), TR83 (Samsun region), TR72 (Kayseri region) and TR71 (Kırıkkale regions). Following the known phenomenon of Turkish spatial structure, top-five migration-losing regions are in the east part of Turkey. They are followed by the regions from northern area and central Anatolia (see figure 4.2). Among those regions, several of them used to be known as economically capable regions particularly in the 1980s and 1990s. Some of these regions are TR83 (Samsun region), TR72 (Kayseri region), TR81 (Zonguldak region), TR62 (Adana region), TRC1 (Gaziantep region) and TR33 (Manisa region). Apart from these regions, main migration route has taken place from eastern regions to western regions.

Table 4.3. Distribution of total employment at NUTS 2 (thousand persons)
(Source: TUIK, 2020)

	2004	2006	2008	2010	2012	2014	2016	2018	2019	Growth
TR10	3521	3808	3923	3947	4493	5096	5558	5899	5778	0,034
TR21	514	525	544	588	660	660	707	772	759	0,027
TR22	541	550	550	568	587	602	607	640	625	0,010
TR31	1045	1104	1171	1303	1424	1504	1566	1663	1620	0,030
TR32	945	891	897	1013	1187	1117	1139	1256	1249	0,020
TR33	1004	961	873	960	1119	1145	1171	1189	1137	0,010
TR41	1051	1114	1151	1140	1301	1333	1380	1511	1463	0,023
TR42	736	861	965	1053	1253	1301	1303	1430	1391	0,044
TR51	1155	1283	1352	1442	1602	1779	1908	1999	1946	0,036
TR52	578	569	729	751	741	771	793	848	841	0,026
TR61	799	888	943	984	1074	1122	1130	1185	1187	0,027
TR62	881	958	998	1173	1208	1247	1308	1327	1311	0,028
TR63	584	714	725	847	922	779	863	965	915	0,034
TR71	402	428	359	455	480	494	506	534	532	0,021
TR72	537	546	572	631	782	752	795	749	740	0,023
TR81	309	371	392	378	435	395	367	374	380	0,016
TR82	183	286	276	287	306	292	318	327	307	0,044
TR83	1041	951	1008	934	925	960	983	1086	1046	0,001
TR90	1096	1046	1071	1037	1031	979	1040	1045	1065	-0,001
TRA1	393	331	345	354	306	345	357	342	323	-0,011
TRA2	299	306	315	304	364	390	377	349	311	0,004
TRB1	365	397	413	485	558	541	565	621	605	0,036
TRB2	355	378	364	415	521	550	523	525	518	0,028
TRC1	472	449	530	614	631	684	710	764	756	0,034
TRC2	485	447	464	563	569	730	846	900	843	0,040
TRC3	341	260	264	370	340	364	381	436	432	0,020
TR	19632	20423	21194	22594	24821	25933	27205	28738	28080	0,024

Table 4.3 and figure 4.3 present how total employment is distributed by the NUTS 2 regions of Turkey from 2004 to 2019. As expected, the highest employment capacities are observed for metropolitan regions (TR10, TR51 and TR31) and industrially developed regions that are close to metropolitan cities (TR41, TR42, TR32 and TR33). Herein, two regions from the south, Adana (TR62) and Antalya (TR61) regions, come to the forefront, as well. On the other hand, the eastern regions and a couple of northern regions positioned at the bottom of the list; namely, TR82, TRA2, TRA1, TR81, TRC3 and TRB2.

Average Growth Rate of Total Employment by NUTS 2 (2004-2019)



Total Employment by NUTS 2 (thousand persons) (2019)

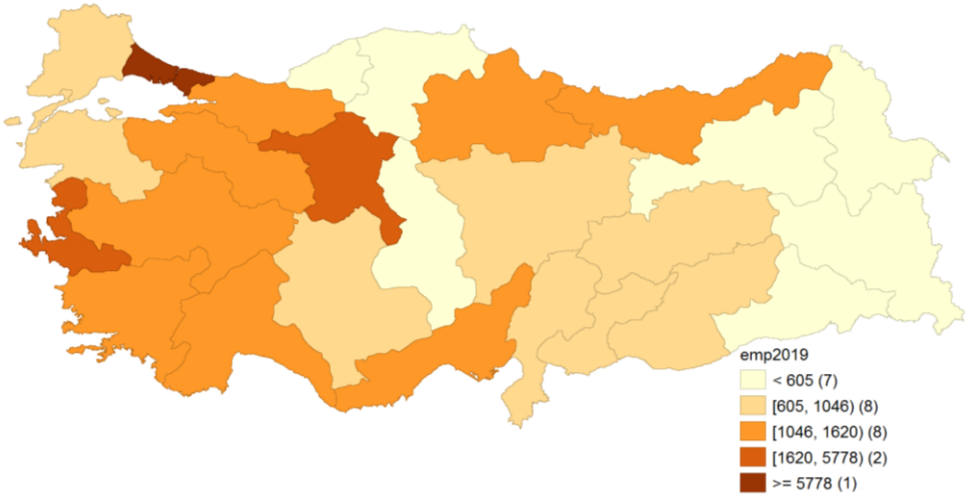


Figure 4.3. Total Employment by NUTS 2: Growth Rate & State of Play

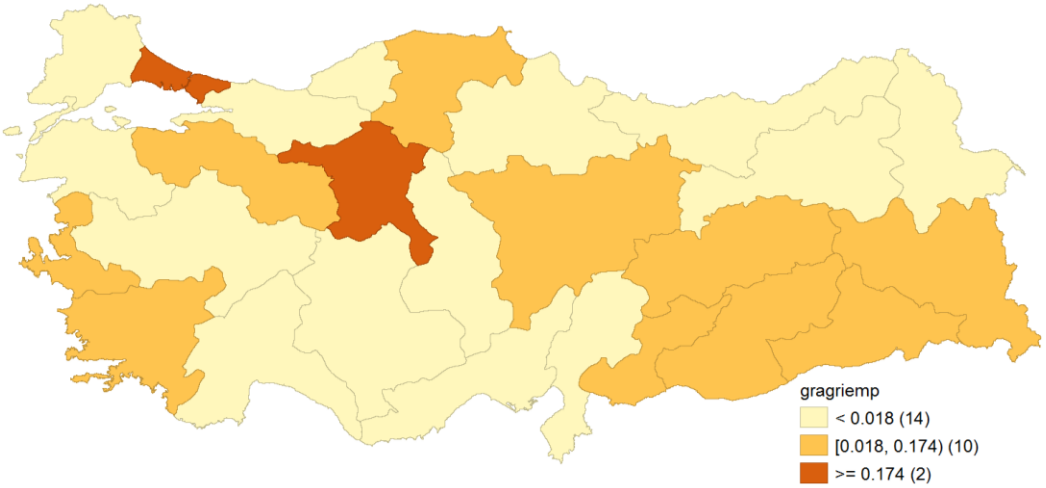
In terms of the average of annual growth rates available in the last column of table 4.3, there are only two regions had negative growth since 2004: TRA1 (Erzurum region) and TR90 (Trabzon region). On the contrary, 20 regions achieved at more than 2% growth. However, some of these regions initially have very low employment capacities and small increase results a high growth rate; namely, TR82, TRC1, TRC2, TRB1 and TRB2 (also see figure 4.3). The regions with relatively higher employment capacities reached also the high growth rates are TR42, TR51, TR10, TR63, TR31, TR62 and TR61. Overall, the metropolitan centres still have the highest levels of employment while the regions including peripheric cities have a fluctuant progress.

Table 4.4. Distribution of agricultural employment at NUTS 2 (thousand persons) (Source: TUIK, 2020)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Growth
TR10	11	16	22	26	27	28	37	51	66	70	69	0,213
TR21	124	127	123	105	118	129	131	121	127	129	121	0,001
TR22	224	226	228	214	213	186	177	178	195	183	172	-0,024
TR31	100	153	178	144	187	158	147	165	161	141	151	0,062
TR32	266	332	400	479	478	328	323	324	323	328	331	0,034
TR33	342	383	477	515	482	449	444	405	388	365	343	0,005
TR41	131	126	150	159	202	143	157	136	157	171	164	0,036
TR42	193	209	261	277	296	238	243	185	207	214	185	0,007
TR51	23	54	77	80	77	54	66	68	63	75	67	0,174
TR52	239	264	257	234	248	198	209	205	218	220	219	-0,005
TR61	314	329	347	339	358	311	278	276	253	224	220	-0,032
TR62	303	355	375	318	285	263	277	309	280	257	260	-0,010
TR63	226	300	305	295	232	168	159	186	228	236	194	0,002
TR71	141	178	170	171	189	170	169	164	151	153	133	0,000
TR72	155	186	298	326	267	199	239	233	195	170	159	0,028
TR81	205	154	180	179	155	152	136	118	125	120	116	-0,049
TR82	111	140	174	146	107	136	135	155	157	148	121	0,026
TR83	519	426	453	393	397	385	385	393	409	455	402	-0,021
TR90	587	567	555	569	451	437	446	439	463	424	484	-0,015
TRA1	188	200	158	128	139	175	186	163	143	122	103	-0,048
TRA2	195	177	192	192	208	232	233	209	195	187	170	-0,011
TRB1	159	208	193	219	275	171	163	166	208	215	200	0,044
TRB2	141	159	210	231	200	258	268	218	236	189	206	0,053
TRC1	130	150	129	147	169	128	125	93	95	115	134	0,018
TRC2	146	157	171	171	213	285	283	299	358	324	316	0,088
TRC3	65	104	62	42	46	89	68	47	63	63	56	0,059
TR	5240	5683	6143	6097	6015	5470	5483	5305	5464	5297	5097	-0,001

Agricultural workers are more concentrated in the Blacksea, Mediterranean and Aegean parts of Anatolia led by following regions: TR90, TR83, TR33, TR32, TRC2, TR62, TR61 and TR52 while metropolitan regions are at the bottom of the list (Table 4.4 and figure 4.4). Notably, the average of annual growth rates has taken negative values for some of these leading regions during the last decade; namely, TR90, TR83, TR62, TR61 and TR52. This reflects the entire country as national employment in agriculture has remained almost same during this 10-year period.

Average Growth Rate of Employment in Agriculture by NUTS 2 (2009-2019)



Employment in Agriculture by NUTS 2 (thousand persons) (2019)

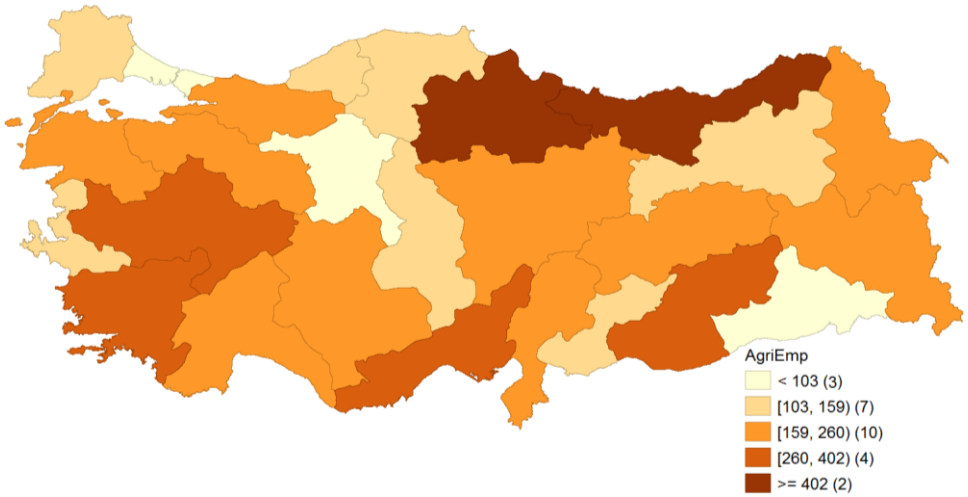


Figure 4.4. Employment in Agriculture by NUTS 2: Growth & State of Play

Overall picture of the employment in services (table 4.5 and figure 4.5) changed in contrast with the process of agricultural employment. The highest numbers of employment in services are observed in the metropolitan regions (TR10, TR51 and TR31) followed by touristic and industrial regions (TR61, TR62, TR41 and TR42). Similar to the overview of the total employment, eastern and northern regions are placed at the bottom; namely, TRA2, TR82, TR81, TRA1, TRB2 and TRC3. Overall, there is a remarkable growth in the service industries from 2009 to 2019. This growth is once again pulled by the relatively more advance regions, e.g. TR10, TR61, TR33, TR21 and TR42. In general, it would be possible to say that the fall of employment in agriculture absorbed by the service industries. This is another common outcome of the neoliberal era.

Table 4.5. Distribution of employment in services at NUTS 2 (thousand persons)

(Source: TUIK, 2020)

	2009	2011	2013	2015	2016	2017	2018	2019	Growth
TR10	2312	2512	2997	3347	3685	3799	3929	3869	0,054
TR21	252	265	323	288	317	347	371	380	0,046
TR22	227	240	261	295	301	308	319	332	0,039
TR31	742	799	846	861	885	949	983	967	0,027
TR32	472	474	493	560	551	592	644	675	0,037
TR33	301	356	349	454	465	496	495	479	0,050
TR41	526	551	623	667	669	688	724	722	0,033
TR42	459	536	598	626	646	670	703	713	0,045
TR51	1010	1115	1196	1319	1372	1434	1455	1466	0,038
TR52	326	306	323	379	364	369	384	395	0,020
TR61	482	560	606	665	672	716	778	802	0,053
TR62	529	624	639	709	705	770	770	770	0,039
TR63	302	374	413	388	459	498	490	501	0,054
TR71	202	219	237	253	243	254	273	296	0,040
TR72	278	253	311	339	353	357	367	379	0,034
TR81	126	148	160	156	161	162	168	183	0,039
TR82	103	107	107	113	114	116	127	137	0,030
TR83	357	368	367	407	416	429	443	464	0,027
TR90	350	329	370	399	439	447	450	435	0,024
TRA1	131	126	139	135	155	166	181	188	0,039
TRA2	90	105	119	111	119	119	114	103	0,018
TRB1	208	225	234	294	311	296	299	305	0,041
TRB2	197	202	209	192	194	197	207	226	0,015
TRC1	229	248	312	355	384	387	397	393	0,058
TRC2	277	324	308	346	387	436	419	396	0,043
TRC3	165	221	230	236	250	244	284	295	0,064
TR	10652	11587	12771	13891	14617	15246	15774	15872	0,041

Average Growth Rate of Employment in Services by NUTS 2 (2009-2019)

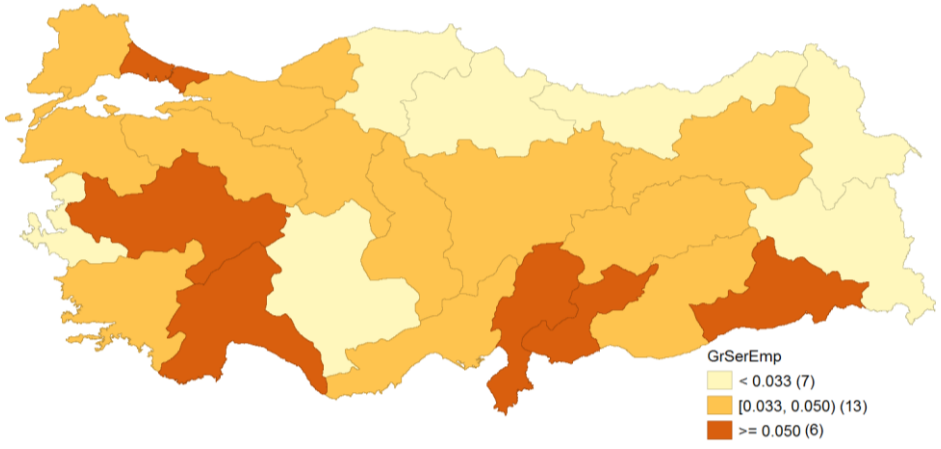


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Figure 4.5. (cont.)

Employment in Services by NUTS 2 (thousand persons) (2019)

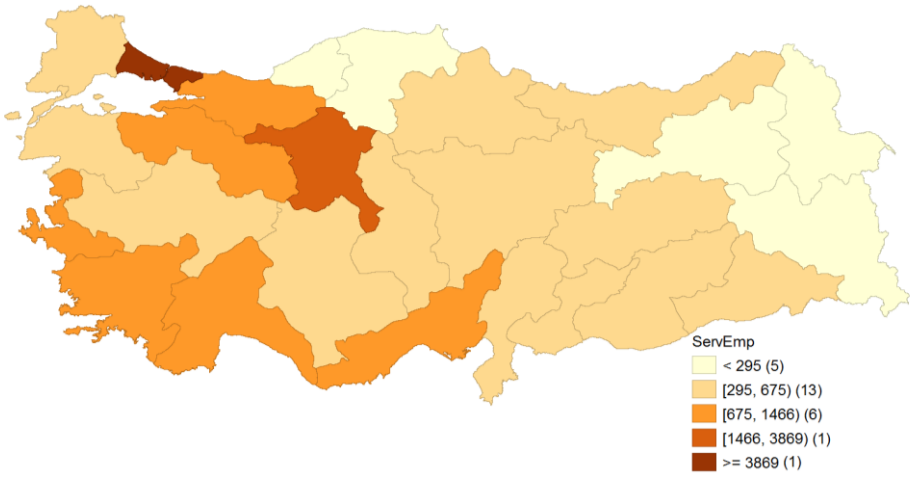


Figure 4.5. Employment in Services by NUTS 2: Growth & State of Play

Figure 4.5 presents the distribution of employment in manufacturing industry by regions. The metropolitan regions and their neighbours, once more, are at the top of this table; in other words, they lead the industrial production in Turkey. These regions are TR10, TR41, TR31, TR42, TR51 and TR33. Similar to the distribution of total employment, regions from eastern and northern Anatolia have the least number of employments in manufacturing. Among the leading regions, Izmir (TR31), Kocaeli (TR42), Manisa (TR33), Ankara (TR51) and Istanbul (TR10) regions also achieved the higher growth rates than national average. Only region having a negative growth rate is the Zonguldak region where the coal resources of the country located (table 4.6).

Table 4.7 presents an important development indicator; unemployment rate. Firstly, average of the annual unemployment rates of Turkey from 2004 to 2019 is around 11%, which is indeed quite high compared to similar level of developing countries. The increases in unemployment rate in the periods of 2008-10 and 2016-19 are notably high. The most recent year, 2019, achieved at the highest unemployment rate that is %13.7 (see the distribution by regions in figure 4.7). Considering the common rhetorical critique against neoliberal policies asserting that the economic growth does not reflect the employment rates, so-called *growth without employment*, this increasingly high unemployment rate of Turkey conforms with this critique. Although Turkish economy has grown in the recent years, the unemployment issue remains a long-lasting concern.

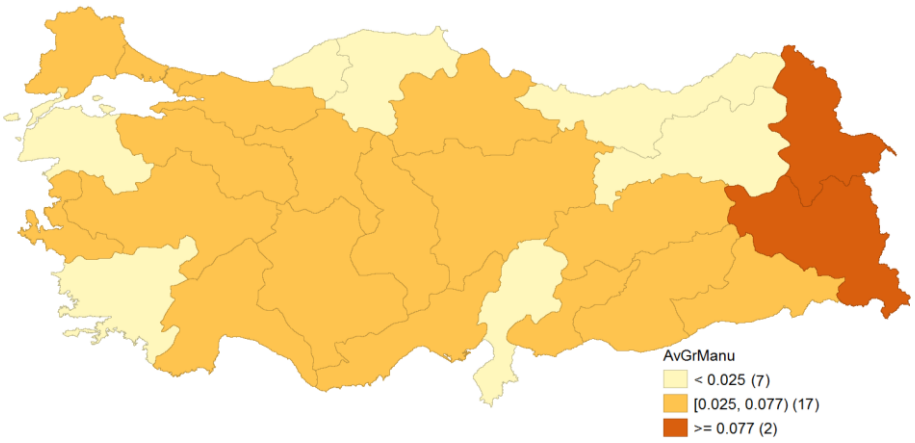
Table 4.6. Distribution of employment in manufacturing at NUTS 2
(Source: TUIK, 2020)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Growth
TR10	1403	1577	1677	1649	1635	1870	1922	1822	1800	1900	1839	0,029
TR21	183	224	244	249	251	263	270	270	266	273	257	0,037
TR22	109	112	107	107	113	128	127	129	131	139	121	0,013
TR31	328	397	433	450	481	477	475	517	501	539	502	0,046
TR32	217	221	214	205	230	270	265	264	290	284	243	0,015
TR33	231	246	233	248	249	259	274	301	306	329	315	0,033
TR41	453	501	536	553	561	577	536	576	607	616	578	0,026
TR42	326	359	414	418	446	474	473	472	509	512	493	0,044
TR51	309	340	352	363	394	458	448	469	462	470	413	0,032
TR52	181	185	179	184	187	224	220	224	239	245	227	0,025
TR61	131	131	125	145	151	163	165	182	192	183	166	0,027
TR62	218	230	242	255	280	297	313	294	285	300	281	0,027
TR63	205	210	210	221	248	230	221	219	235	238	219	0,008
TR71	62	69	85	79	83	88	95	100	112	109	103	0,056
TR72	147	168	192	190	185	193	200	209	219	212	201	0,034
TR81	86	88	90	99	101	93	88	87	91	87	81	-0,005
TR82	45	44	43	48	49	46	42	50	57	52	49	0,013
TR83	130	141	175	152	177	198	186	174	185	189	180	0,039
TR90	138	131	153	138	137	171	173	162	162	170	145	0,011
TRA1	29	28	41	37	35	41	39	38	46	40	31	0,023
TRA2	19	28	47	48	58	55	48	49	45	48	37	0,098
TRB1	68	76	102	101	109	98	100	89	103	107	101	0,048
TRB2	50	56	84	89	111	106	112	111	138	129	86	0,077
TRC1	172	198	204	219	226	229	224	233	249	252	229	0,031
TRC2	82	97	113	135	144	145	156	159	165	157	131	0,053
TRC3	63	72	82	78	97	73	71	84	82	88	81	0,035
TR	5385	5927	6380	6460	6737	7227	7246	7283	7478	7667	7110	0,029

The highest levels of unemployment are observed in the eastern regions; namely, TRC3 (Mardin region), TRB2 (Van region), TRC2 (Sanliurfa region) and TR63 (Hatay region) (figure 4.7). The regions traditionally having industrial backgrounds surprisingly placed right below the top group; TR31 (Izmir region), TRC1 (Gaziantep region), TR10 (Istanbul region), TR72 (Kayseri region), TR51 (Ankara region), TR42 (Kocaeli region) and TR61 (Antalya region); therefore, relatively stronger economies strive to address unemployment issue. On the other hand, the regions having lower unemployment rates are the ones that have lower population density and industrial capacity; namely, TR82 (Kastamonu region), TR22 (Balıkesir region), TR32 (Aydin region), TR81 (Zonguldak region) and TRA2 (Agri region). These regions at the same time lose population based

on immigration to more developed regions (see table 4.2) and it probably reflects a lower unemployment rate. The only region with relatively higher industrial capacity achieved at a low unemployment rate is the Manisa region (TR33).

Average Growth Rate of Employment in Manufacturing by NUTS 2 (2009-2019)



Employment in Manufacturing by NUTS 2 (thousand persons) (2019)

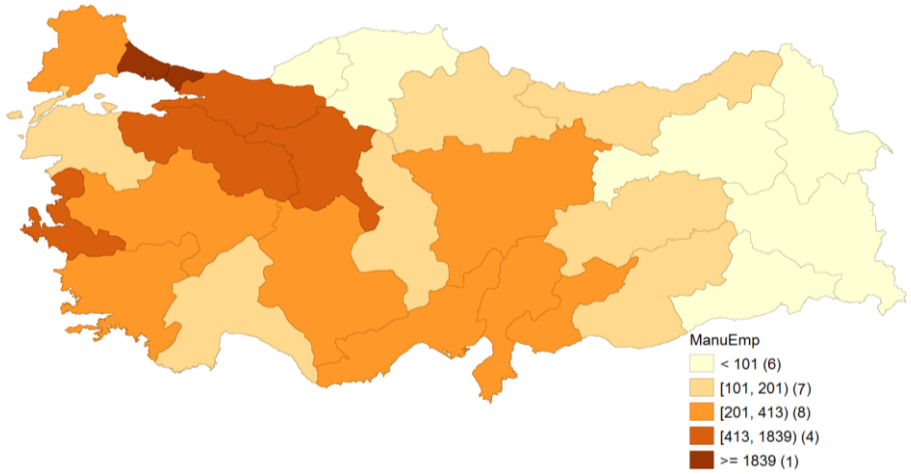


Figure 4.6. Employment in Manufacturing: Growth & State of Play

Lastly, the distribution of GDP per capita in 2018 by NUTS 2 is available in figure 4.8. The figure reflects a well-known phenomenon: low-income regions are positioned in the east part of Turkey and level of income consistently increases from east to west. The highest level of income is expectedly observed in the Istanbul region; moreover, in line with the results of local Moran's I statistics (available ins section 4.3.6.2), the high-income regions have built up a cluster on the north-west of Turkey while regions with the lowest level of income have placed on the south-west.

Table 4.7. Unemployment rate at NUTS 2 (%)

(Source: TUIK, 2020)

	2004	2006	2008	2010	2012	2014	2015	2016	2017	2018	2019	Average
TR10	12,4	11,4	11,2	14,3	11,3	11,9	12,9	13,5	13,9	12,5	14,9	12,6
TR21	6,6	8,3	11,2	9,8	7,4	7,6	7,3	7,5	8,3	7,5	11	8,6
TR22	6,5	6,2	7,5	7,7	5,4	5,6	5,3	6,7	6	5,7	8,3	6,4
TR31	15,7	12	11,8	15,1	14,8	13,9	15	14	14	13,8	16	14,2
TR32	7,7	7,7	10,8	11,9	7,7	7,2	6,9	6,7	7,1	6,9	9,2	8,5
TR33	7,6	7,4	8,3	7,6	4,4	3,9	4,1	4,8	6,2	6,8	9,8	6,7
TR41	9,3	8	10,3	10,1	7,4	6,2	7,8	9,2	9,8	9	11,2	9,0
TR42	12,7	11,7	10,8	13	10,5	10	10,1	10,7	10,8	10,2	13,5	11,5
TR51	15,3	12,7	11,8	12,1	9,5	11,5	11,2	11,4	11,3	10,1	14,2	11,9
TR52	8,9	11,3	10,2	8,4	6,1	5,6	6,5	6,1	5,9	5,9	8	7,8
TR61	7	7,7	8,9	10,7	8,2	8,3	9,6	11,5	12,1	11,6	13,3	9,4
TR62	14,9	16,9	16,8	16,7	10,6	10,7	9,8	10,4	10,7	11,2	11,9	13,8
TR63	17,4	12,2	15,8	13,6	10,4	15,4	16,4	14,4	11,5	14,1	18,1	14,4
TR71	10,2	10,4	10,1	10,1	6,8	7,7	9,9	13,4	11,4	10,9	13,3	10,2
TR72	9,9	11,5	11,4	13,7	8,2	9,6	9,7	8,4	11,9	13,2	14,5	11,2
TR81	12,2	6	6,9	10,8	7,3	6	7	8,6	7,2	8	9,6	8,0
TR82	10,7	5	6,7	8,3	5,6	6,5	6,8	5,8	4,6	5,1	7,6	6,7
TR83	6,2	7,2	7,4	7,2	5,7	6,2	6,5	7,9	6,7	6,4	8,3	6,8
TR90	6,9	5,6	5,8	6,1	6,3	6,2	4,8	4,5	3,6	6,2	9,9	6,1
TRA1	3,6	5	6,3	6,2	6,3	7,4	5,9	5	5,5	7,5	11,2	6,3
TRA2	1,8	5,1	5,6	10,3	7,4	3,4	3,9	4,9	5,5	5,3	9,8	6,2
TRB1	19,2	14,1	14,5	11,9	8,5	7,5	8	8,9	7	8	9,9	11,5
TRB2	10,6	7,8	14,2	17	8,9	13,5	9,5	9,2	12,8	21,5	25,9	13,2
TRC1	15,1	15,2	16,4	12,1	11,8	8	9,9	14,3	15,1	12,8	15,2	13,5
TRC2	11,8	12,1	14,1	13,1	6,9	17,4	17,5	17,2	13,8	18,6	23,4	14,7
TRC3	6,1	15,7	17,4	11,8	21,3	24	24,8	28,3	26,9	25	30,9	19,5
TR	10,8	10,2	11	11,9	9,2	9,9	10,3	10,9	10,9	11	13,7	10,9

Average of Annual Unemployment Rates by NUTS 2 (2004-2019)

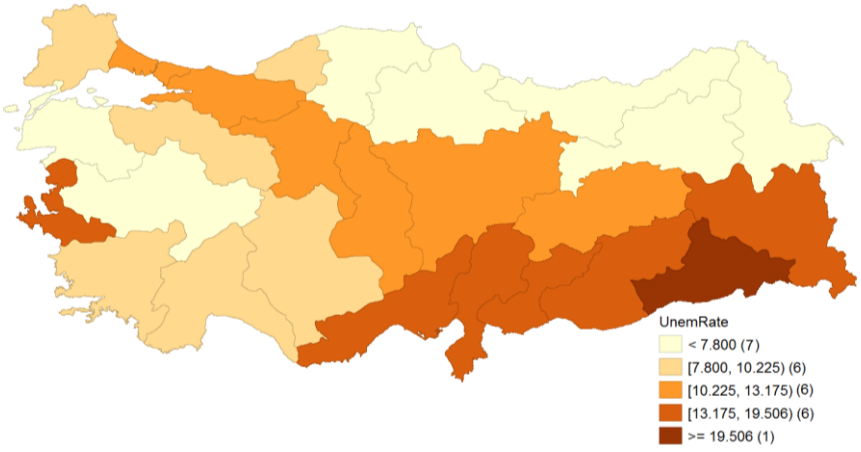


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Figure 4.7. (cont.)

Unemployment Rates by NUTS Level 2 (thousand persons) (2019)

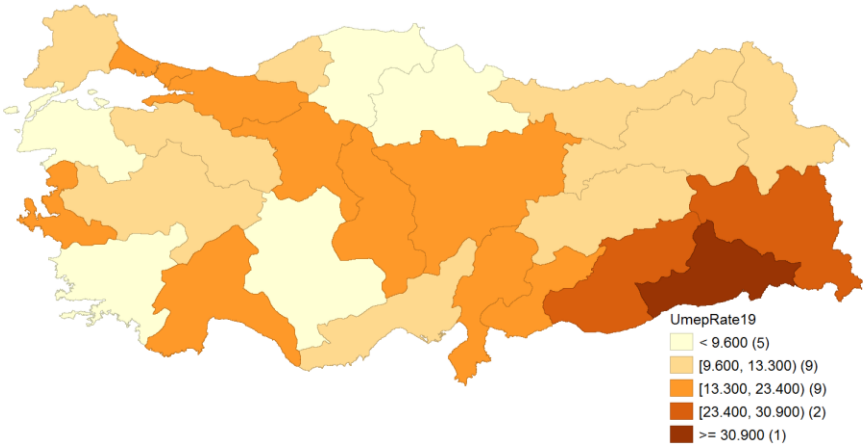


Figure 4.7. Unemployment Rate: Average & State of Play

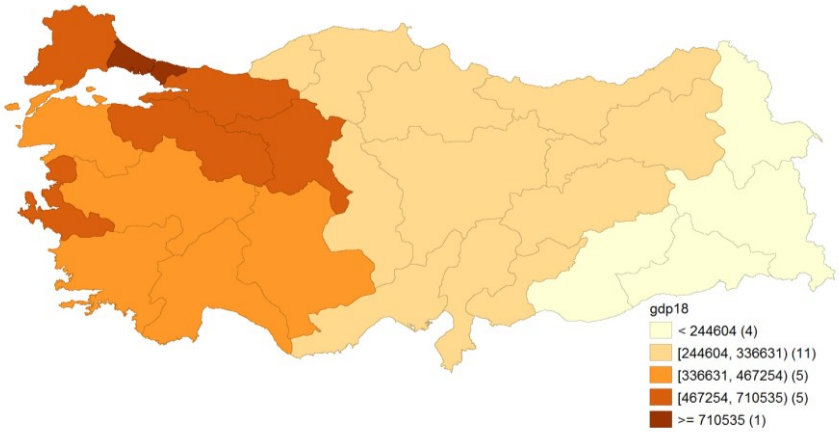


Figure 4.8. Distribution of GDP per capita by NUTS 2 (2018)

As a result, there is a significant income disparity between eastern and western regions of Turkey. However, it is not the only gap observed in the regional pattern. There are advanced production areas and extensive labour markets concentrated around the metropolitan cities, particularly Istanbul and Izmir, as well as Ankara. A couple of regions from the southern part of country (TR61 and TR62) perform relatively better in terms of the level of production and employment. Following the results of main indicators covering the last 10-15 years, most of the regions that reached a notable levels of manufacturing capacities in the 80s and 90s – so-called *Anatolian tigers* – have not sustained the long-term efficient economic growth. Eventually, the economic geography of Turkey presents an uneven pattern with polarised development zones concentrated around the regions owning metropolitan cities.

4.3. Regional Disparities: Indices and Coefficients

There are such sorts of indices and coefficients that are developed for the measurement of regional disparities. They can be classified within two groups. One group measures the absolute values and shows the level of regional disparities. The second group allows analysing regional differences compared to each other and/or to their macro-level, i.e. state or country. The second set of indices, which is known as *relative indices*, is preferred in this study as they provide an opportunity to compare the tendencies of regional development over time between different spatial units. For this purpose, regional disparities in Turkey are explored through various indicators, namely; GINI, Relative Mean Deviation, Coefficient of Variation and Max-Min Ratio. All the indices are applied at the level of NUTS 2.

4.3.1. Coefficient of Variation

Coefficient of Variation (CV), which is also known as *unitised risk*, is a normalised measure of dispersion of any type of distribution. Since the CV was implemented to the measurement of the regional disparities for the first time by Williamson (1965), it has widely been used to define development level and/or differences between regions (Nermend, 2006). The CV is ideally suitable for intraregional comparison purposes within a country and not considered ideal for analysis at international level because of its sensitivity to the number of regions.

The CV is basically the ratio of a standard deviation to the mean; in other words, it simply measures the dispersion of the observations over the mean. The CV aims to describe the dispersion of the variable in a way that does not depend on the variable's measurement unit. The progress of the CV over years shows how the regional dispersion has changed in time, as well.

The coefficient of variation is calculated as follow:

$$CV = \frac{\sqrt{\frac{\sum_i^n (yi - \bar{y})^2}{N}}}{\bar{y}}$$

Where CV is the coefficient of variation, *yi* is the GDP per capita in region *I*, $\bar{y}$ is the national GDP per capita, and *N* is the number of regions.

4.3.2. GINI Index

Gini index (GINI) is used to measure the extent to which distribution of income among individuals, households or regions within an economy deviating from a perfectly equal distribution. It is based on a Lorenz curve that plots the cumulative percentages of total income received against the cumulative number of recipients. GINI mathematically measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Therefore, a Gini index of 0 represents perfect equality, while an index of 1 implies perfect inequality.

In this study, GINI is applied to the NUTS 2 regions in Turkey and calculated using by following formula.

$$G = 1 + \frac{1}{n} - \frac{2}{n^2 y} \sum_i y_i \, (n + 1 - i)$$

Where *G* is GINI index in a given year; *I* is the region; *n* is the number of regions (26 in our cases); and y_i is the GDP per capita in region *I* in each year.

4.3.3. Maximum-Minimum Ratio

The maximum-minimum ratio (MMR) is a ratio of the maximum per capita GDP to the minimum per capita GDP in a given year. This simple indicator fundamentally shows the dimension of unevenness.

$$MMR = \frac{y_{it}}{y_{jt}}$$

Where MMR is the maximum-minimum ratio in the year *t*, y_{it} is GDP per capita in the region which has the highest value, y_{jt} is GDP per capita in the region which has the lowest value. If the absolute value of MMR is low (close to 1), it shows that the

inequality is relatively low; if the absolute value is high, the inequality among regions is high as well.

4.3.4. Relative Mean Derivation

The Relative Mean Deviation (RMD) is a population-based index and is generally used as control indicator in comparison to other indices. It is calculated through following equation.

$$RMD = \frac{\sum_i^n |y_i - \bar{y}| \frac{p_i}{p}}{\bar{y}}$$

Where RMD is the relative mean deviation, *I* is the region, y_i is GDP per capita in region *I*, $\bar{y}$ is overall GDP per capita of the country, p_i is the population of region *I* and *p* is the total population of country.

4.3.5. Results and Findings

The indices provide an opportunity to understand the level of regional unevenness and to elaborate the changes over time. Table 4.8 and figure 4.9 show the results of the relative indices.

From 1980 to 1988 where Turkish economy defined by the systemic deregulations of the SSAP, regional disparities opened prominently. In this period, all the indices had adverse trend. While rising values of CV, GINI and RMD represent the increase in regional disparities all over the country, high values of MMR shows opening gap between the richest and poorest regions. In the subsequent period from 1989 to 1994 when the political conjuncture was more determinant on the economic policies and populist policies took place, all the indexes went notably down and regional disparities in Turkey relatively closed.

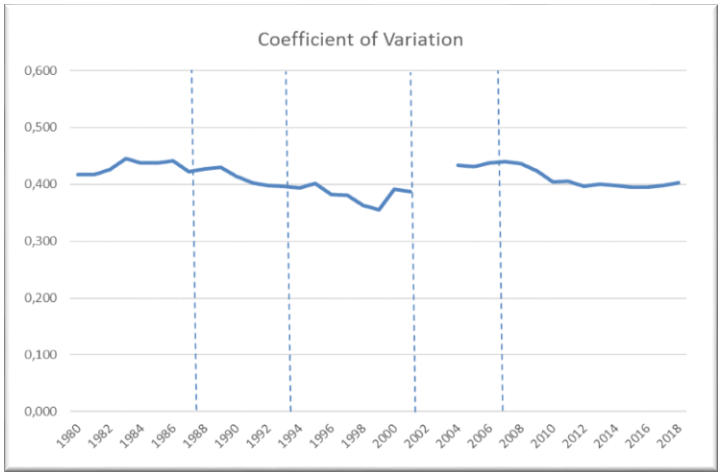
The period between 1995 and 2001 had two opposite economic phenomena; an economic recession took place from 1995 to 1997 and country reached a year of economic expansion in 1998-99. This changing structure expectedly reflected to the inequality indices and they had fluctuant trends. However, unexpectedly a favourable trend observed

under the circumstances of economic recession while the trend turned into adverse movement in the years of economic expansion. In other words, unevenness relatively decreased during the economic crisis, but the gap was opened again when economic growth started.

Table 4.8. Results of relative indices

Year	CV	MMR	GINI	RMD
1980	0.417	5.605	0.322	0.376
1981	0.417	5.341	0.322	0.372
1982	0.426	5.617	0.341	0.390
1983	***0.446***	5.795	0.332	0.396
1984	0.438	6.746	0.356	0.391
1985	0.438	6.556	0.355	0.396
1986	0.441	6.684	*0.358*	*0.399*
1987	0.422	*7.312*	0.351	0.383
1988	0.427	7.232	0.355	0.385
1989	*0.430*	***7.526***	*0.356*	*0.386*
1990	0.415	6.090	0.343	0.377
1991	0.403	6.287	0.337	0.367
1992	0.398	6.745	0.330	0.355
1993	0.396	5.518	0.330	0.355
1994	0.393	5.639	0.325	0.345
1995	*0.402*	5.625	*0.340*	0.357
1996	0.383	5.629	0.331	0.335
1997	0.381	*5.674*	0.329	0.336
1998	0.363	4.940	0.309	0.318
1999	0.355	4.551	*0.307*	0.315
2000	0.391	5.326	0.330	*0.358*
2001	0.387	5.631	0.314	0.338
2002	n/a	n/a	n/a	n/a
2003	n/a	n/a	n/a	n/a
2004	0.433	*4.785*	0.372	0.395
2005	0.431	4.629	0.371	0.391
2006	0.438	4.704	0.379	0.398
2007	*0.441*	4.651	**0.381**	***0.403***
2008	*0.436*	*4.631*	*0.379*	*0.396*
2009	0.423	4.446	0.366	0.382
2010	0.404	4.194	0.348	0.364
2011	0.405	4.205	0.351	0.369
2012	0.397	3.890	0.347	0.361
2013	0.400	3.986	0.351	0.364
2014	0.398	4.025	0.349	0.358
2015	0.396	4.242	0.349	0.356
2016	0.395	4.108	0.349	0.356
2017	0.398	4.284	0.353	0.361
2018	0.402	4.303	0.357	0.362

21st century started with increasing inequality between regions. Regional disparities considerably increased in the period of 2002-07 where where inherited IMF policies dominated economic policies in a similar way to the early 1980s. It is notable that all relative indices, GINI, CV and RMD, reached the highest level of inequality in 2007. Subsequently, another fluctuant trend is observed in the most recent period. From 2008 to 2012, regional disparity decreased; and then, a relatively stable period took place until 2016. Afterwards, regional disparities opened once again during the last three years. Based on data availability, it is not possible to say whether this is a new trend.



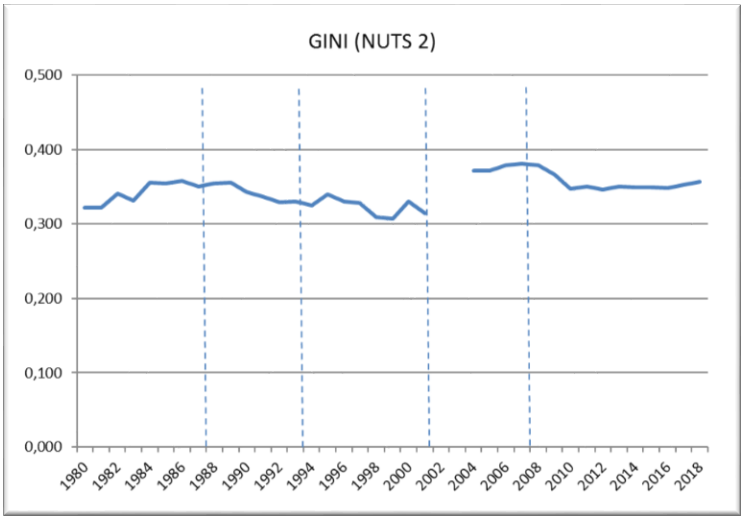


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Figure 4.9. (cont.)

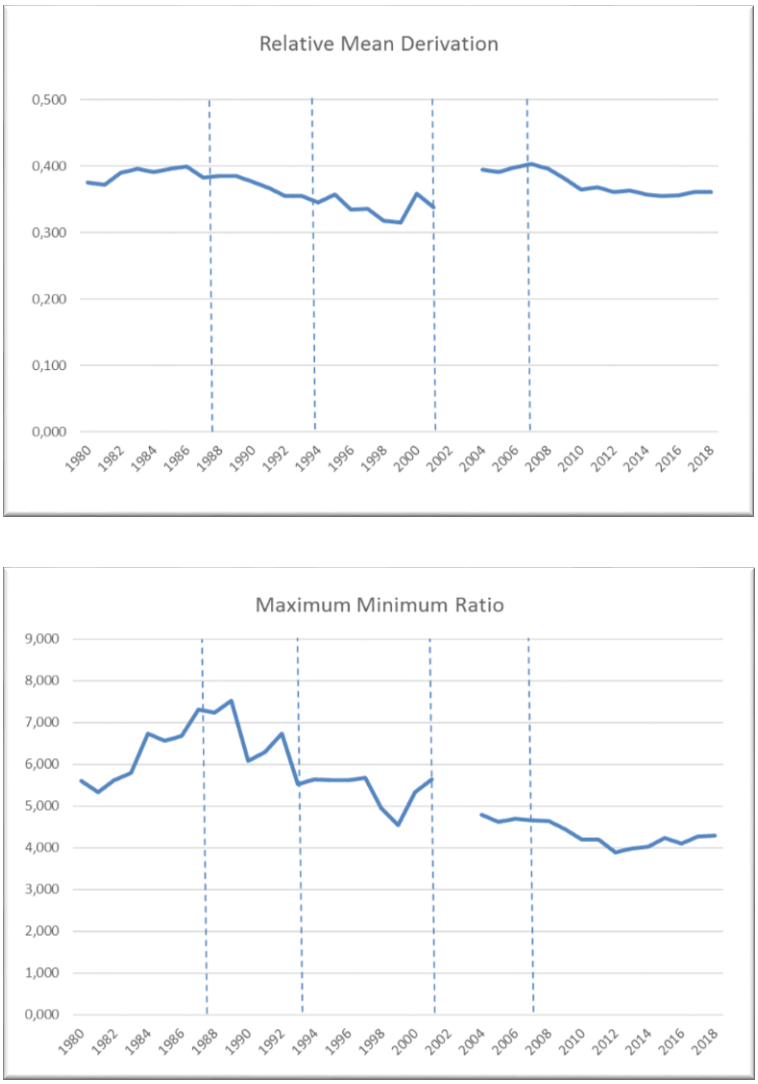


Figure 4.9. Trends of the Unevenness Indices

To sum up, liberalisation policies implemented since the 80s have not provided permanent solution for regional uneven development; i.e. GINI was 0.322 in 1980 and rose to 0.357 in 2018 after 38 years. An improvement is observed in MMR, from 5.605 in 1980 to 4.303 in 2018; therefore, the gap between the richest and poorest regions relatively closed. However, following the relative indices, regional uneven development has remained a permanent struggle for Turkey since the 1980s. Additionally, it should be underlined that Turkey has converging trends during the economic recessions and crises while regional disparities mostly increased in the years of economic expansion.

4.3.6. Exploratory Spatial Data Analysis: Global and Local Moran's I

Previous section presents the result of spatial coefficients and indices. These indices, by their nations, do not offer opportunities to interpret whether there is a spatial relation among the regions. However, spatial relations (correlations, dependence, interactions etc.) can have important effect on the distribution of income over regions. For this reason, following sections consist of the spatial regression models and related analysis measuring spatial relations, i.e. Lagrange Multiplier tests. Yet, before these analyses, a couple of specific techniques are applied in this section to identify whether there is a spatial relation between regions, as well as the characteristics of these relations if any. These techniques are called the "Exploratory Spatial Data Analysis" (ESDA).

The ESDA focuses on the specific features of geographical data and identifies the spatial patterns with emphasis on spatial associations, clusters, and hot spots, as well as atypical locations and spatial outliers (Dall'erba, 2009). It also allows analysts to visualise spatial relations when combined with the GIS techniques. Eventually, the ESDA does not provide explicit insights on the locational data but explores the relations between variables and their interactions, namely, it analyses presence of spatial variations in a given variable, which is called *spatial autocorrelation*.

In this section, we analyse spatial autocorrelation through the two commonly used techniques; global Moran's I and local Moran's I that is also called the 'Local Indicators of Spatial Association' (LISA). These analyses offer tools to explore whether there is a spatial relation among the NUTS 2 regions of Turkey, as well as to detect clusters if exists.

4.3.6.1. Global Moran's I

Spatial autocorrelation is defined by Anselin and Bera (1998; 241) as "the coincidence of value similarity with locational similarity". In other words, it implies a correlation between a specific variable of a region and same variable in the neighbouring region(s). Spatial autocorrelation can have positive or negative values. Positive correlation takes place when neighbouring regions have similar kind of values; i.e. both have high or low values; on the other hand, negative correlation points out different values; i.e. high-valued region is neighbour to the low-valued region (Anselin and Bera, 1998). If there is a spatial autocorrelation among neighbouring regions, it should be taken

into account in empirical analysis, particularly the analyses focusing on the income distribution. Otherwise, results would be incoherent.

One of the two main methods of ESDA, *global spatial autocorrelation*, is centred on the degree of clustering in the overall trend. In this way, it clarifies the overall pattern and as well as whether there is a trend. Global Moran's I is a commonly used technique to calculate global spatial autocorrelation. Moran's I values range from -1 to +1 where closer to +1 indicates stronger positive spatial autocorrelation while getting closer to -1 implies stronger negative spatial autocorrelation. Global Moran's I is calculated by using following equation (Anselin, 2001).

$$GI_t = N \sum_{i=1}^{N} \sum_{j=1}^{N} x_{i,t}\, x_{j,t}\, w_{i,j} \Big/ N_W \sum_{i=1}^{N} x_{i,t}^2$$

$$x_{i,t} = y_{i,t} - \bar{y}_t \; and \; x_{j,t} = y_{j,t} - \bar{y}_t$$

Where GI_t is global Moran's I at time t; x is the deviation of income per capita; $y_{i,t}$ is income per capita in region i at time t; $y_{j,t}$ is income per capita in neighbouring region j at time t; $w_{i,j}$ is a binomial matrix of spatial weights (zeros on the diagonal, i.e. $w_{i,i} = 0$) and N_W is the sum of all $w_{i,j}$.

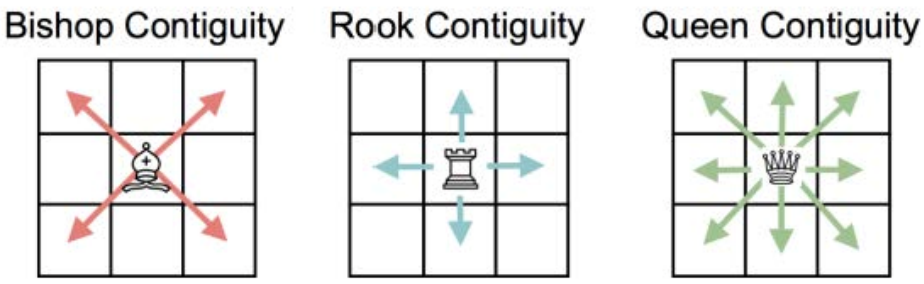


Figure 4.10. Neighbourhood Definitions based on Contiguity
(Source: Sedaghat et.al. 2013, 56)

The spatial weight matrix ($w_{i,j}$) is one of the main determinants of Moran's I. There are various ways to determine spatial weights. Anselin (1988), with a clear reference to chess, described three types of neighbourhood concepts: *bishop*, *rook* and *queen*. Rook contiguity refers to side by side neighbourhood while bishop is based on the shared corner. Queen contiguity combines both bishop and rook (see figure 4.10). If $wi_{,j}$

is 1 in the spatial weight matrix, this means they are neighbours. If there is no neighbourhood connection, $w_{i,j}$ is 0.

In this study, the Queen Contiguity Matrix is used when calculating global Moran's I. Spatial dimension is added through a binomial weight matrix corresponding the 26 NUTS Level 2 regions in Turkey. GDP per capita from 1980 to 2018 at NUTS 2 is used as an income indicator; therefore, spatial impact on the income distribution over regions is explored.

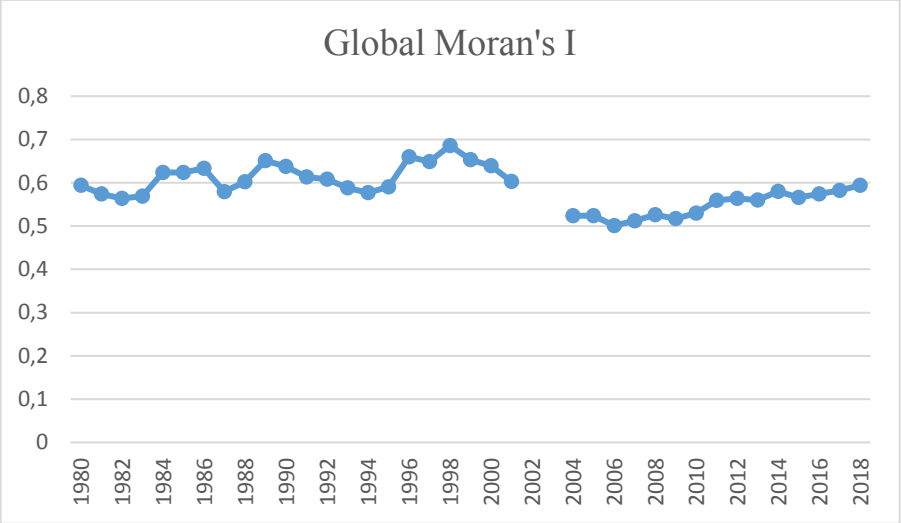


Figure 4.11. Evolution of Global Moran's I (1980-2018)

Figure 4.11 presents the evolution of global Moran's I statistics over time. First of all, it should be noted that all the values are statistically significant. As all the values over years are higher than 0.5, presence of positive spatial correlation among the NUTS level 2 regions in Turkey is confirmed. In other words, income levels of the regions are related to income levels of the neighbouring regions in the broadest sense. In return, the fluctuating trend of global Moran's I until 2000s is drawn attention. After the Turkey Statistical Institute (TUIK) amended the national indicators, where also data gap is taken place for the years 2002 and 2003, global Moran's I values have remarkably decreased, but it has kept the level corresponding a value higher than 0.5. Eventually, in the following years starting from 2004, global Moran's I values achieved at a consistently increasing trend. Lastly, it is notable that the beginning year's number, in 1980, and the final number, in 2018, reached approximately same value (around 0.6) though analysis applied to the long time-series data covering 38 years.

Following the periodisation applied in this thesis, global Moran's I values did not have notable increase or decrease in comparison of 1980 and 1988 even though the trend was fluctuant in this period. Values having a decreasing trend from 1989 to 1994 showed an upward tendency in the following years starting from the mid-1990s. Finally, a decreasing trend observed in the early years of the 21st century, as mentioned above, has given place to a rising trend since 2004.

It should be noted that global Moran's I helps exploring spatial autocorrelation in entire regional ecosystem and offers opportunities to interpret spatial relations in general view. In this juncture, analysis focusing on local dynamics can enhance these interpretations and offer further results to explore clustering tendencies. For this reason, local Moran's I is analysed in the subsequent section.

4.3.6.2. Local Indicators of Spatial Association (LISA): Local Moran's I

Previous section statistically confirms that there is a positive spatial autocorrelation between the NUTS level 2 regions of Turkey in terms of the distribution of income per capita. However, it is still not clear whether this correlation takes place in specific clusters. The Local Indicators of Spatial Association (LISA), developed by Anselin (1995), addresses this issue and determines clustering patterns with regard to the income distribution. There are two requirements to apply the LISA; namely, "(1) the LISA for each observation gives an indication of the extent of significant spatial clustering of similar values around that observation; (2) the sum of LISAs for all observations is proportional to a global indicator of spatial association" (Anselin, 1995, 94). The LISA, different than global Moran's I, focuses on the local interactions and clarified particular clustering localities. Similar to the Anselin's model selection methodology based on the Lagrange Multiplier (LM) test (see section 4.4.1.2), the LISA is designed to reject the null hypothesis based on the random spatial distribution of selected indicator; hence, alternative hypothesis assuming clustering tendency can be confirmed. In this way, the LISA helps exploring not only spatial associations, clusters, and hot spots, but also atypical locations and spatial outliers.

The equation of local Moran's I is following.

$$LI_i = x_i \sum_j w_{i,j} x_j$$

$$x_i = y_i - \bar{y} \; and \; x_j = y_j - \bar{y}$$

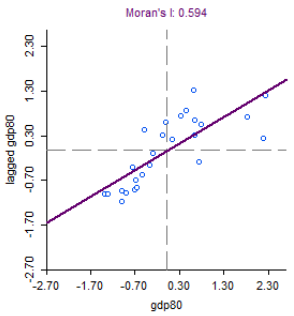
Where LI_i is local Moran's I in region i; x is the deviation of income per capita; y_i is income per capita in region i; y_j is income per capita in neighbouring region j; and $w_{i,j}$ is a binomial matrix of spatial weights.

Local Moran's I offers a particular classification of specific places with emphasis on the general characteristics of spatial autocorrelation. In this respect, it developed four scenarios for spatial clusters based on high or low levels of income, which is relative to average income (Anselin, 1995); namely,

- High-high (cluster): a region and its neighbouring region have relatively higher values
- Low-low (cluster): a region and its neighbouring region have relatively lower values.
- High-low (spatial outlier): a region has a high value while the neighbouring region has low value.
- Low-high (spatial outlier): a region has a low value while the neighbouring region has high value.
- No spatial autocorrelation (insignificant): there is no spatial autocorrelation.

Following the classification summarised above, maps and scatter plots by selected years, which correspond to the breaking years of periodisation defined for this thesis, are presented in figure 4.12. It should be noted that all the statistics represented in scatter plots are statistically significant in 5% interval.

1980



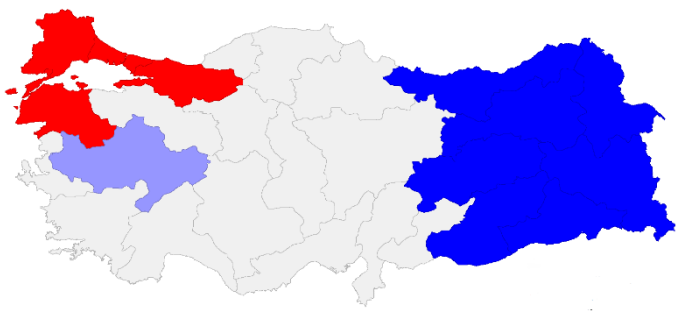


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Figure 4.12 (cont.)

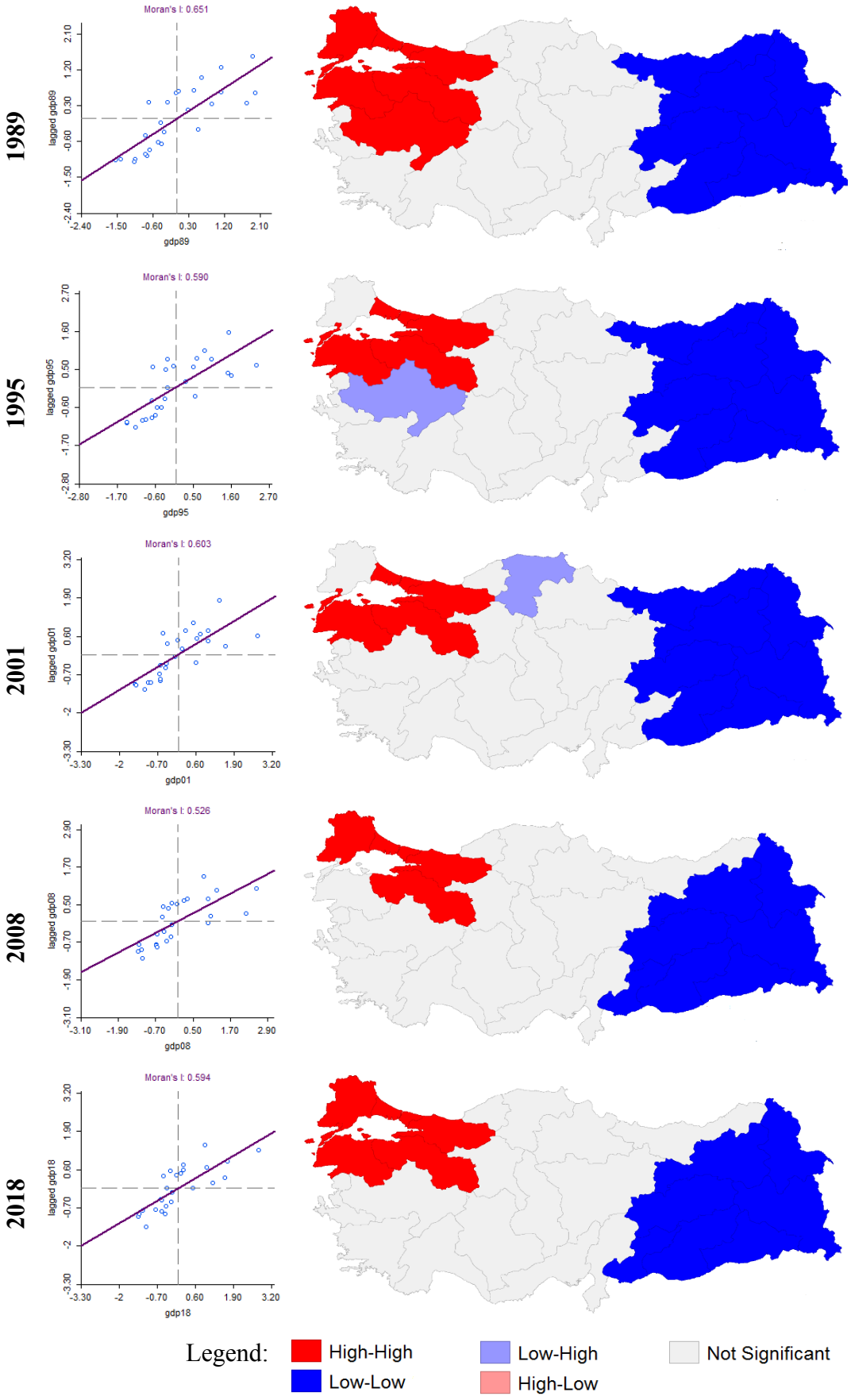

Figure 4.12. Local Moran's I Cluster Maps and Scatter Plots by NUTS 2

According to the results of local Moran's I (figure 4.12), positive autocorrelation between NUTS 2 in Turkey once again confirmed on the strength of the scatter plots from different years. In the scatter plots, income of the region is placed on the x-axis and the spatially lagged variable is on the y-axis. The plots also reflect the state of spatial autocorrelation: regions on the right half of the plot have relatively higher income while the left half contains regions with lower income. In this way, each region and its neighbour(s) can be classified in the high- or low-level income groups. Furthermore, regions belonging the high-high and low-low clusters, which justifies the presence of positive autocorrelation, are placed in the upper-right and the lower-left quadrants, respectively. On the contrary, the upper-left and lower-right quadrants represent negative spatial autocorrelation, classified respectively as low-high and high-low spatial autocorrelation. Eventually, following the scatter plots, Turkish regional pattern is more likely disposed to have positive spatial autocorrelation.

Presence of positive spatial autocorrelations is also confirmed by the mapping results of local Moran's I as high-high and low-low clusters cover the most of the spatial autocorrelations (figure 4.11). High-high cluster takes place around the Istanbul region (TR1) on the north-west of Turkey. TR10, TR41 and TR22 mostly involved in this cluster. In addition, TR21 joins this club except the period from the end of 1990s to the beginning of 2000s. It is possible to claim that these developed regions spatially interact and take advantage over each other's economic capacities. Low-low cluster – where a region and its neighbour(s) having relatively lower level of income – observed in the eastern part of Turkey. Seven regions (namely, TRC1, TRC2, TRC3, TRB1, TRB2, TRA1 and TRA2) are involved in this cluster since the 1980s. Although TR 90 was a part of this cluster in the last two decades of 20th century, it has stayed out of this group in the recent decade. On the other hand, negative spatial autocorrelation is observed in small quantities and only in a form of low-high cluster; namely, TR33 in 1980 and 1995; and TR82 in 2001. It is notable that there has been no spatial outlier (low-high or high-low) in last 20 years. Lastly, two developed metropolitan regions – indeed the second (Ankara Region, TR51) and third biggest (Izmir Region, TR31) economies of Turkey – are involved in the group classified as 'insignificant', which means no spatial autocorrelation observed. These strong economies have not created spill-over effect and established a cluster.

Anselin (2005) highlights that the regression-based models should be combined with approaches taken into account the spatial dimension where there is a strong spatial impact. Global and local Moran's I statistics present a strong positive spatial

autocorrelation in regional pattern of Turkey. Therefore, spatial models are preferred in the regression-based convergence analyses. At this point, it is critical to choose the most suitable model efficiently analysing the spatial impact. Related model selection analysis, details of convergence models and results are presented in the subsequent sections.

4.4. Classical and Spatial Econometric Analyses

In this section, the convergence hypothesis, which is one of the most emphasised models of the neoclassical growth theory, is empirically tested in the case of Turkey. The hypothesis assumes regional disparities would be removed in the case of fully relying on the liberal policies. This concept has been modelled by Barro and Sala-i-Martin (1995), Sach and Warner (1995) and Islam (1995) (also see section 2.2.1). In addition, these models are improved by additional variables and spatial views in more recent years. In this section, classical and spatial convergence models, as well as unconditional and conditional variations, are applied to NUTS level 2 in Turkey. In this way, one of the main neoclassical assumptions is tested in the case of Turkey.

4.4.1. Convergence Model

As explained in detail in chapter two, convergence model follows the assumptions of the Swan-Solow model (see section 2.2.1) and fully relies on the liberal market mechanisms to remove regional disparities. The model mainly considers that a poorer economy always grows faster to catch up the steady-state; therefore, regional convergence takes place in the case of full trust to open market conditions and liberalised international trades (Barro and Sala-i Martin, 1995; Baltzer et al. 2008).

The empirical details of the convergence model have been tested over many countries and regions. Popularity of the hypothesis is mostly based on the studies made by Sachs and Warner (1995), Islam (1995), Baltzer et.al. (2008) and Barro and Sala-i Martin (1992 and 2004), which is followed in the analyses of this thesis.

4.4.1.1 Literature Review: Convergence Analyses Centred on Provinces and Regions in Turkey

Origin and main milestones of the convergence approach are summarised in section 2.1.1.1. Indeed, regional convergence and related models to analyse convergence trends have been attracted considerable attention in Turkey since the end of 1990s. Some of the known and commonly rated studies based on their well-developed analytical ground are listed in table 4.9.

Some milestones studies and their main findings deserve to be highlighted. One of the earliest studies was undertaken by Filiztekin (1998) who carried out the analysis across the provinces for the period of 1975-1995. The study ended with a convergence only in conditional model while sigma analysis and unconditional model resulted slow divergence. On the other hand, Tansel and Güngör (1998) applied the panel-data regression model for the same period and conclude with a contradictory result indicating convergence across the provinces. This shows the importance of the model selection as two studies undertaken in the same year and analysed same period, but resulted fully different.

Five studies investigating to find out whether there is a convergence between Turkish provinces and/or geographic regions in the first decade of 21st century [namely; Berber et.al. (2000), Erk et.al. (2000), Karaca (2004), Gezici & Hewings (2004) and Halac & Kustepeli (2008)] get on the same page and concluded their studies with either regional divergence or emphasis on 'no convergence'. These works applied different methods in the regression analyses and centred on different time periods (see table 4.9 for the details); however, they all found no convergence or divergence by using beta convergence analysis. In addition, there are studies that arrived at split conclusions based on the spatial units and/or chosen techniques. Altinbas et.al. (2002) found divergence between the provinces that supported by specific economic incentives while the provinces without incentives converge to more equal point. Yildirim et.al. (2009) measure income convergence and reported convergence at NUTS level 1; however, they underlined the widening income gap between eastern and western regions. Similarly, Karaalp and Erdal (2009) investigate convergence across provinces and geographic regions by using sigma convergence analysis and concluded their studies with divergence between geographic regions and convergence between provinces. It should be noted that Karaalp and Erdal

(2012) repeated their analysis by using beta convergence model with panel-data and concluded their work in this time with a convergence between provinces. These examples can be seen as the reflection of the debated nature of convergence analysis in the literature.

Table 4.9. Review of Convergence Models in the Case of Turkey

Source	Spatial unit	Years	Type of model	Result
Filiztekin (1998)	- Provinces	1975-1995	- Beta conv. (OLS in cross-sectional regression) - Sigma conv.	- Convergence in conditional model - Slow divergence for unconditional model - No convergence for sigma
Tansel and Güngör (1998)	- Provinces	1975-1995	- Beta conv. (OLS, NLS and panel data)	- Convergence in sigma for the period 1980-95 - Convergence in beta for the period 1975-95
Berber, Yamak and Artan (2000)	- Geographic regions	1975-1997	- Beta conv. (OLS) - Sigma conv.	- No convergence in sigma and beta
Erk, Ates and Direkci. (2000)	- Provinces - Geographic regions - Functional regions	1979-1997	- Beta conv. (OLS & NLS) - Sigma conv.	- Slow divergence in provinces - Divergence in geographic regions - Divergence in low-income functional regions - Convergence in high-income functional regions
Sagbas (2002)	- Provinces	1986-1997	- Beta conv. (OLS)	- Convergence in unconditional and conditional (w/ government expenditures) models - No impact of government expenditures on convergence
Altinbas, Doğruel & Güneş (2002)	- Provinces	1987-1998	- Sigma conv	- Divergence in the provinces under specific incentives - Convergence for the rest
Akdede and Erdal (2003)	- Provinces - Geographic regions	1991-1997	- Beta conv. (panel data)	- Slow convergence in conditional (w/ public expenditures)
Karaca (2004)	- Provinces	1975-2000	- Beta conv. (OLS) - Sigma conv.	- No convergence in both conditional and unconditional models
Gezici & Hewings (2004)	- Provinces - Functional regions	1980-1997	- Beta conv. (OLS & spatial models)	- No convergence in provinces and regions for both unconditional and conditional models - Strong spatial impact

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Table 4.9. (cont.)				
Ersungur & Polat (2006)	- NUTS 1	1987-2000	- Beta conv. (OLS) - Sigma conv.	- Slow convergence only in unconditional model - Conditional model is insignificant - Convergence in sigma
Önder, Karadağ & Deliktaş (2007)	- NUTS 1	1980-2001	- Beta conv. (spatial models; SLM & SEM; panel data)	- Convergence in conditional model w/ public capital - Strong spatial impact in unconditional model - No spatial impact with public capital
Halac & Kustepeli (2008)	- Geographic regions	1990-2001	- Panel unit-root tests	- No convergence
Karaalp & Erdal (2009)	- Geographic regions - Provinces	1993-2001	- Sigma conv.	- Divergence for geographic regions - Convergence between provinces (except the ones in the Aegean Region)
Yıldırım, Öcal & Özyıldırım (2009)	- NUTS 1 - NUTS 2	1987-2001	- Beta conv. (OLS, spatial models & regression w/weighted variable)	- Convergence between provinces, - Widening gap between east and west - Spatial models are more explanatory and significant
Onder, Deliktas and Karadag (2010)	- NUTS 1	1980-2001	- Beta conv. (panel data, spatial models: SLM and SEM)	- Convergence in conditional models w/public capital - Convergence in sigma - Public capital spatially insignificant
Zeren and Yilanci (2011)	- NUTS 2	1991-2000	- Beta conv. (random coefficient panel model)	- Convergence in unconditional model for 17 regions - Convergence in conditional model for 25 regions
Karaalp and Erdal (2012)	- Provinces - Geographic regions	1993-2001	- Beta conv. (panel data)	- Convergence in unconditional and conditional (w/manufacturing impact) models
Ozgul and Karadag (2015)	- NUTS 2	1990-2001	- Sigma conv. - Beta conv. (OLS)	- Convergence in unconditional model - Convergence in sigma - No notable effect of socio-economic variables
Gomleksiz, Sahbaz and Mercan (2017)	- NUTS 2	2004-2014	- Sigma conv. - Beta conv.	- Convergence in both unconditional and conditional (w/government investments)

Sagbas (2002), Onder et.al. (2007) and Onder et.al. (2010) applied different models (OLS estimator and spatial models with panel data) in different time periods

(1986-1997 and 1980-2001). These three studies concluded with regional convergence in unconditional and conditional models. In addition, these works investigate the role of government in the regional convergence. Unexpectedly, they all indicate that governmental expenditures have no effect on the convergence speed. Onder et.al. (2007 and 2010) also underline that governmental expenditures are not significant in the spatial models; in other words, variable does not have spatial impact. On the contrary, Gomleksiz et.al. (2017) assert that governmental investments have a strong influence on the convergence rate. Eventually, we can say that the role of governmental expenditures remains in an open debate following abovementioned studies. As this variable is also tested in this thesis (section 4.4.1.4 and 4.4.1.5), it is useful to highlight these conflictual results to allow comparing them with our results (section 4.4.2.2 and chapter five).

Lastly, the number of studies centred on NUTS regions has reasonably increased after 2006. This is expected as the fact that NUTS regions are designed to align regional statistics and regional policies to address development problems and to increase geographical integrity (Taskan, 2006) (for more details, see section 4.1.1). Policy context of the NUTS regions would probably attract researchers to analyse income disparities at NUTS levels. In addition, the model technicalities of beta convergence changed over time. While Ordinary Least Square (OLS) and Non-linear Least Square (NLS) were commonly applied in the early years, panel data regression models and spatial models have become more popular in the recent years. In parallel with these changes, most of the studies (undertaken starting from 2006) have reported converging trends, which significantly different compared to the various results obtained before 2006. This, on the one part, can be because of the accuracy and significance of spatial models; on the other part, it can be based on the enlarged time-series datasets as the quality of data is critical to achieve accurate estimation when applying regression-based models.

Convergence studies in Turkey have reached a significant variety. These models offer an efficient tool to elaborate regional disparities, as well as the characteristics of uneven development. In this thesis, we apply these models to obtain more information on the regional pattern and its tendencies in Turkey, as well as to analyse the impact of liberalism on the regional convergence.

4.4.1.2. Model Selection

The regression-based models should be combined with a spatial dimension where there is autocorrelation between neighbouring regions. In this point, there are three models commonly used in consensus; namely, the "Spatial Autoregressive Model" (SAR) [focuses on the autoregression with the spatially lagged dependent variables], "Spatial Error Model" (SEM) [centred on the spatial impact taking part in the error term] and "Spatial Durbin Model" (SDM) [measuring spatial dependency with neighbouring regions] (also see section 4.4.1.5). Although there are other spatial models, i.e. SDEM, SLX and models combining the approaches of SAR an SEM, also used for regression-based convergence, these models are not recommended for the panel data sets as the results are mostly incoherent (Elhorst, 2014).

In order to select the most efficient models, two practical approached are used: the first one called *bottom-up* approach while other called *top-down* approach (Floch and Saout, 2018). The bottom-up approach is developed by Elhorst (2014) and offers a methodology to identify the best suited model within three options; SAR, SEM and SDM. The test of Elhorst (2010 and 2015) initially presumes the existence of spatial dependency and develops particular steps for spatial panel models through utilising the Lagrange Multiplier (LM) test, as well as the likelihood ratio test when needed.

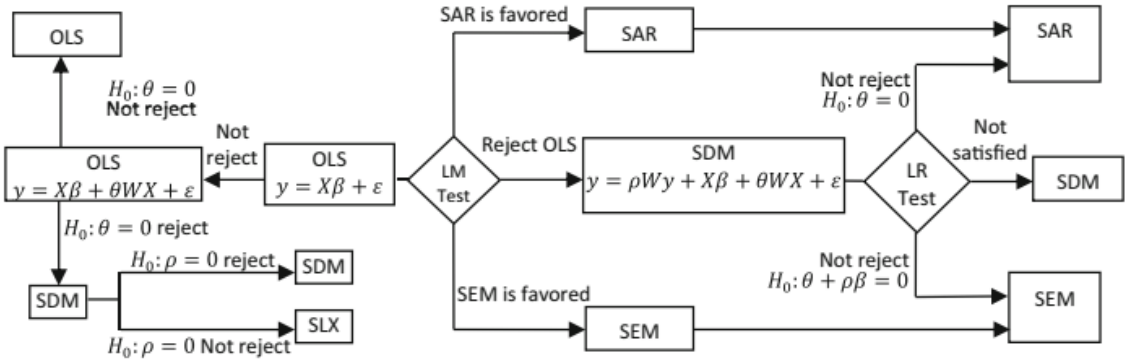

Figure 4.13. Elhorst Spatial Model Testing Procedure
(Source: Chen and Haynes, 2015, 15)

Figure 4.13 summarises the procedures of the Elhorst model selection procedure. The procedure starts with a spatial Ordinary Least Square (OLS) regression model and checks the parameters (λ, θ, ρ) by applying LM tests. The OLS model clarifies the spatial

relationship. Afterwards, the SDM model is applied and LM tests are once again utilised to clarify which hypothesis is supported. The procedure eventually identifies the best suited spatial model.

The second common model selection procedure, once more for the panel data spatial regression-based models, is developed by Anselin (2005). This procedure also starts with an OLS regression model to clarify whether there is a spatial dependency. Subsequently, LM tests are applied to spatial parameters to clarify what type of spatial relationship taken place (figure 4.14). This allows checking two hypotheses; while one is centred on the autocorrelation between spatially lagged variables (implying the SAR model), the other focuses on whether error term has any spatial dependency (implying the SEM model). When the LM tests results are significant in one per cent interval, null hypothesis is rejected; hence, spatial impact is confirmed. If both, LM lag and LM error tests are significant, results of Robust LM tests finalises the model selection.

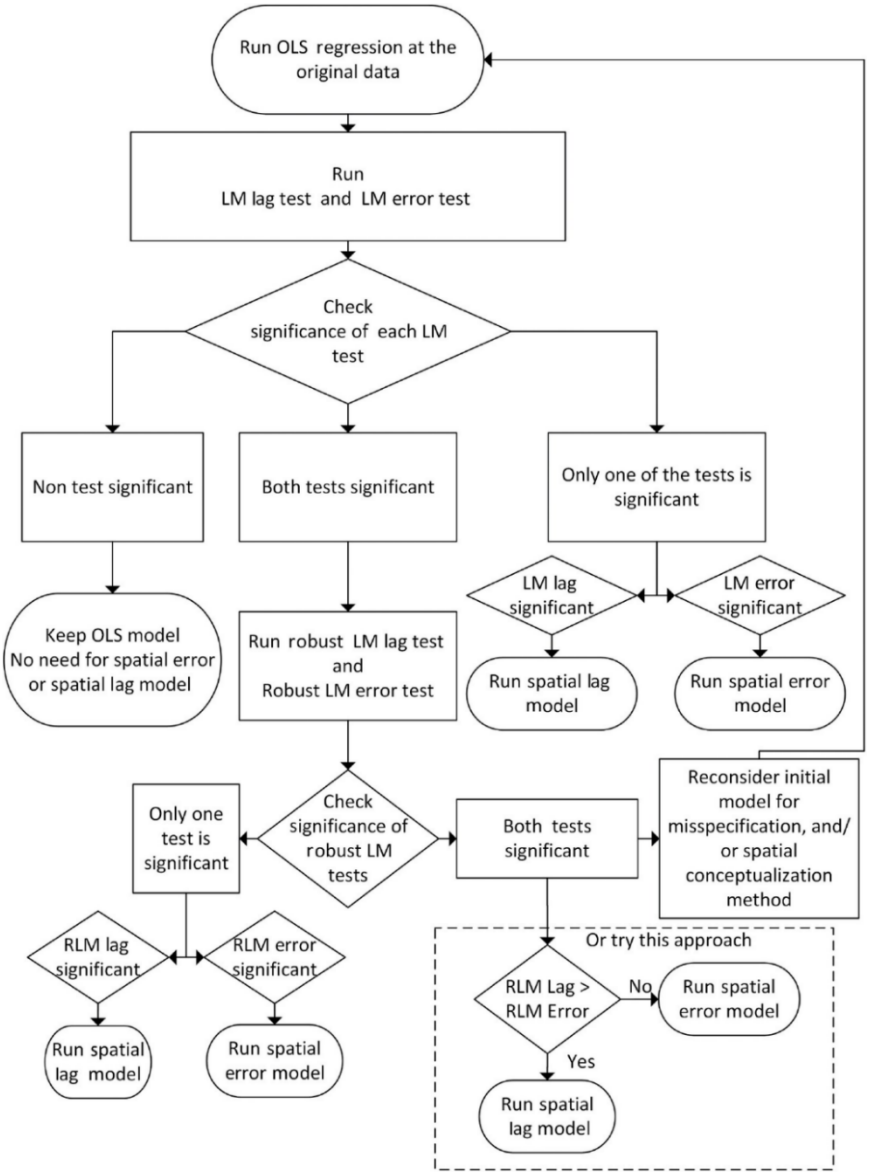

Figure 4.14. Anselin Spatial Model Testing Procedure

(Source: Grekousis, 2010, 454)

In this thesis, Anselin's procedure is followed. LM tests are separately applied to unconditional and conditional models. For the selection procedure, following hypothesis are tested: First hypothesis checks whether there is a spatial correlation in error term (SEM model), and second checks autocorrelation with spatially lagged variable (SAR model).

$H_{0\_(error)}$: Error term has no spatial autocorrelation

$H_{1\_(error)}$: Error term has spatial autocorrelation (SEM)

And

$H_{0\_(lag)}$: Spatially lagged dependent variable has no spatial autocorrelation

$H_{1\_(lag)}$: Spatially lagged dependent variable has spatial autocorrelation (SAR)

Table 4.10. Results of LM Tests

	LM Test (probability)	Robust LM Test (probability)
Unconditional model, 1980-2018		
$\mathbf{H_{0\_(error)}}$	852.2660 (0.0000)	7.5092 (0.0061)
$\mathbf{H_{0\_(lag)}}$	871.5045 (0.0000)	26.7476 (0.0000)
Conditional: all variables		
$\mathbf{H_{0\_(error)}}$	241.6868 (0.0000)	0.2836 (0.5944)
$\mathbf{H_{0\_(lag)}}$	283.2285 (0.0000)	41.8254 (0.0000)
Conditional: with population, 1980-2018		
$\mathbf{H_{0\_(error)}}$	850.9089 (0.0000)	7.7370 (0.0541)
$\mathbf{H_{0\_(lag)}}$	869.1157 (0.0000)	25.9438 (0.0000)
Conditional: with government expenditures, 1999-2018		
$\mathbf{H_{0\_(error)}}$	446.8303 (0.0000)	5.1192 (0.0237)
$\mathbf{H_{0\_(lag)}}$	457.3912 (0.0000)	15.6802 (0.0001)
Conditional: with savings, 1988-2018		
$\mathbf{H_{0\_(error)}}$	749.6471 (0.0000)	6.3830 (0.0165)
$\mathbf{H_{0\_(lag)}}$	776.1961 (0.0000)	32.9320 (0.0000)
Conditional: energy, 1995-2018		
$\mathbf{H_{0\_(error)}}$	602.7234 (0.0000)	16.2412 (0.0001)
$\mathbf{H_{0\_(lag)}}$	588.7210 (0.0000)	2.2388 (0.1346)
Conditional: export-import, 2004-2018		
$\mathbf{H_{0\_(error)}}$	246.4400 (0.0000)	1.0736 (0.3001)
$\mathbf{H_{0\_(lag)}}$	296.6256 (0.0000)	51.2591 (0.0000)

Table 4.10 presents the results of LM and Robust LM tests in order to test the $H_{(error)}$ and $H_{0\_(lag)}$ null hypotheses for different periods based on data availability. All the results of LM tests, for both LM_error and LM_lag tests, are statistically significant in the one per cent interval. Therefore, the null hypotheses asserting no spatial relation are rejected; in other words, the LM tests once more confirm a strong spatial dependency between the NUTS level 2 regions in Turkey according as the results of Moran's I analysis. On the other hand, the LM tests alone are not adequate to select the best suitable tests. Thus, following the Anselin procedure, the models can be distinguished and

selected based on the results of Robust LM tests. Finally, results of the model selection procedure can be summarised as following:

- Both models, SAR an SEM, are significant and explanatory for unconditional convergence models.
- Only SAR is preferred for the conditional convergence models.
- When testing each model with single conditional variable, results of robust LM tests once again indicate the SAR model. Only exception is observed for the model consisting of 'electricity consumption per person'; therefore, SEM is more explanatory for this model.

In following sections, the spatial convergence models are applied in line with the results summarised above. Although these results show that the spatial models are better explanatory, results of nonspatial models are also presented in these sections in order to facilitate comparative interpretations. Panel-data regression is preferred in all models to take advantage over the existing data-set. Panel data regressions are more informative and significant and avoid collinearity problem. Additionally, panel models are more efficient compared to OLS estimations (Baltagi, 2005). Also, OLS models are more biased and inconsistent if there is a strong spatial impact between regions (Anselin, 2001). Finally, as recommended by one of the developers of panel-data convergence models (Islam, 1995), all models apply 'fix-effect' estimator. After all, related literature recommends applying fixed-effect estimator with maximum likelihood techniques for panel data models where there is a spatial impact, i.e. spatial autocorrelation (Elhorst 2010 and 2012).

Following section includes another approach to convergence, called sigma-convergence; subsequently, the spatial beta convergence models, further explanations on their details and results are presented in further sections starting from 4.4.1.4.

4.4.1.3 Sigma (σ) Convergence

Mathematically, there are two concepts of convergence in the literature about economic growth across countries or regions; namely, sigma (σ) convergence and beta (β) convergence.

σ-convergence involves cross-sectional dispersion. Simply, convergence occurs if the dispersion, which is measured by the standard deviation of the logarithm of per capita

income across a group of countries/regions, declines over time. Main assumption of *β-convergence* (*underdeveloped economy tending to grow faster than developed ones*) tends to generate σ convergence (*reduced dispersion of per capita income or product*) (Barro and Sala-i-Martin 1995; Sala-i-Martin 1994).

Following to Barro and Sala-i-Martin (1994) and Baltzer et al. (2008), σ-convergence can be calculated in two steps.

$$1)\ Y_{i,t} \equiv y_{i,t} - y_{B,t}$$

Where $y_{i,t}$ and $y_{B,t}$ represent GDP per capita at time *t* for region *i* and benchmark asset (herein GDP per capita overall in Turkey) respectively.

σ-convergence assumes that standard deviation of GDP decreases gradually over time, therefore, the equation to estimation of *σ-convergence* can be written as following.

$$2)\ \sigma_t^s \equiv \sqrt{I^{-1}\sum_{i=1}^{I}[(\ln(Y_{i,t}) - \ln(\bar{Y}_t)]^2}$$

Where *I* is the number of regions applied to analysis (corresponding 26 in this study), and $\bar{Y}_t$ is the cross-sectional average of GDP per capita (equivalent to GDP per capita at national level) at time *t*.

Table 4.11 shows the results of *σ-convergence* and figure 4.15 presents the overall trend from 1980 to 2018 in Turkey for the NUTS Level 2 regions. Results of the σ-convergence are perfectly aligned with the results of inequality indices. Uneven development increased in the 1980s when Turkey applied the systematic deregulations under the guidance of IMF and WB. This trend was temporally broken in the first half of the 1990s where populist politics were relatively more dominant than the market determinants. The second half of the 1990s once again had fluctuating trends: regional disparities increased when economic growth took place and vice versa during the economic recession. Moreover, sigma went down (more converged) after each structural crisis; namely, the crises of 1988, 1994, 2001 and 2008.

Table 4.11. σ-convergence estimations

1980-1988		1989-1994		1995-2001		2002-2007		2008-2018	
1980	0,464	**1989**	***0,527***	**1995**	*0,462*	**2002**	n/a	**2008**	*0,419*
1981	0,470	**1990**	0,498	**1996**	0,457	**2003**	n/a	**2009**	0,399
1982	0,468	**1991**	0,469	**1997**	0,450	**2004**	0,415	**2010**	0,371
1983	0,477	**1992**	0,465	**1998**	0,427	**2005**	0,414	**2011**	0,378
1984	0,509	**1993**	0,453	**1999**	0,415	**2006**	0,420	**2012**	0,363
1985	0,495	**1994**	0,454	**2000**	0,452	**2007**	*0,421*	**2013**	0,367
1986	0,503			**2001**	0,436			**2014**	0,369
1987	0,510							**2015**	0,370
1988	*0,515*							**2016**	0,373
								2017	0,381
								2018	0,385

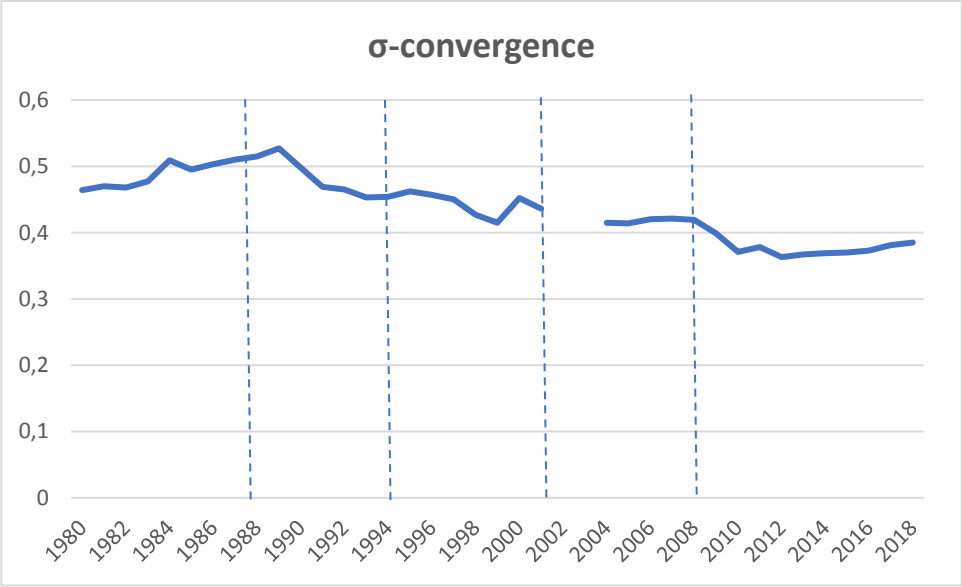

Figure 4.15. Evolution of σ-convergence

σ-convergence demonstrates a balanced run in the early 21st century until the almost end of the first decade. Afterwards, a significant fall observed for the coefficient, which implies decreasing inequality. However, second decade of the century once more attests to an increasing inequality between regions: the sigma coefficient, in general, has

had a fluctuating process during last two decades. A convergence trend needs be underlined considering the starting and ending states of play (0.464 in 1980 and 0.385 in 2018.

4.4.1.4 Conditional and Unconditional Beta (β) Convergence

The convergence hypothesis is based on the assumptions of neoclassical growth theory; therefore, convergence is realised if an underdeveloped economy tends to grow faster and catches up to the developed economy in terms of the income level. This property corresponds to the concept of *β-convergence.* Following the assumptions of convergence hypothesis, lower starting level of income, relative to the long-run or steady-state position, has a faster growth in marginal productivity. It derives from the assumption of diminishing returns to capital: the economies having less capital per worker have tendency the higher rates of return and higher growth rate. From this viewpoint, Sala-i Martin (1994) asserts that positive rates of growth can persist over a century or more. It should be noted that this kind of convergence appears if there are more homogenous groups of economies.

Barro and Sala-I Martin (1994) developed the following model for the first time:

$$\left(\frac{1}{T}\right).\mathrm{Ln}\left(\frac{y_{i,t}}{y_{i,t-T}}\right) = a - \left[\mathrm{Ln}\left(y_{i,t-T}\right)\right].\left[\frac{1-e^{-\beta T}}{T}\right] + u_{i,t}$$

Where *i* is a region; *t* represents time/year; y_i is income per capita; $y_{i,t-T}$ is the initial income per capita, *T* is total time period; and $u_{i,t}$ is error term. In this model, convergence is confirmed where beta coefficient takes negative value. However, this model takes only account the starting and ending values. When time period (T) is longer, model loses its reliability. In response to this incompetency, Islam (1995) applies the panel regression.

$$y_{i,t} = \gamma y_{i,t-1} + \sum_{j=0}^{2} x_{i,t}^{j} + n_t + \mu_i + v_{i,t}$$

As $y_{i,t-1}$ corresponds to previous year's income per capita, negative value of γ stands for economic convergence. The novelty of this model comes from panel

regression; in this way, convergence trend can be calculated not only based on the initial year but all the values from beginning to end.

As a result, in this study, absolute β-convergence is calculated by using following equation. All regressions apply the panel data with fixed effect.

$$\Delta Ln[y] = \beta_0 - \beta_1 Ln\left[y_{i,t_0}\right] + u_{it}$$

Where y_{i,t_0} is GDP per capita for the region *i* at initial year and u_{it} correspond to error term. As mentioned above, a positive β_1 indicates that there is no regional convergence (consequently the fact of divergence) while a negative β_1 oppositely represents an absolute convergence. In addition, absolute magnitude of β measures the average speed of convergence in whole economy.

The beta convergence model allows adding variables in order to measure the impact of other variables on the convergence trends, which is called the conditional beta model. First of all, this offers solution to a limiting assumption of the model. Unconditional beta convergence assume that all the countries or regions have same states and conditions at the beginning. However, conditional model takes into consideration the differences between regions based on the selected conditional variables. In addition, the model provides new dimensions to understand the impacts of these variables on the regional convergence.

In this study, the most commonly used variables, where data are available, are added to the model; namely, population (as a share of total population), governmental investments (per capita), foreign trade (as export/import ratio) and investments. As data of investments are not directly available, substitutional variables are intended to use; they are savings per capita and electricity consumption per person. Finally, following equation is used to test conditional beta convergence hypothesis.

$$\Delta Ln[y] = \beta_0 - \beta_1 Ln\left[y_{i,t_0}\right] + \beta_2 Ln\left[n_{i,t}\right] + \beta_3 Ln\left[s_{i,t}\right] + \beta_4 Ln\left[g_{i,t}\right] + \beta_5 Ln\left[e_{i,t}\right] + \beta_6 Ln\left[f_{i,t}\right] + u_{it}$$

Where y_{i,t_0} is GDP per capita for the region *i* at initial year; $n_{i,t}$ is the share of population in region *i* at year *t;* $s_{i,t}$ is savings per person in region *i* at year *t*; $g_{i,t}$ is public investment in region *i* at year *t*; $e_{i,t}$ is electricity consumption in region *i* at year *t,* ; $f_{i,t}$ is

export/import ratio in region *i* at year *t* and u_{it} correspond to error term. The models are applied by adding only one conditional variable each time in order to see the impact of each variable separately. As the available data correspond to different years for each variable, this approach allows raising the number of observations. Additionally, a dummy variable corresponding economic crisis is added to the model where mathematically achieving a more significant result. Similar to the unconditional models, the panel regression with fixed effects applied to the conditional convergence models.

4.4.1.5 Conditional and Unconditional Spatial Beta (β) Convergence

The convergence analyses have been improved over the past decade with a spatial perspective. Spatial impact on the convergence trends, which refers to similarities in the movements of interacted (mostly neighbour) regions, started to be measured. Main spatial models are *Spatial Autoregressive Model* (SAR) [focuses on the autoregressive errors and spatial lags of variables], *Spatial Error Model* (SEM) [centred on the spatial impact taking part in the error term], *Spatial Durbin Model* (SDM) [measuring spatial dependency with neighbouring regions] and *Spatial Autocorrelation Model* (SAC) [combination of SAR and SEM]. Neighbouring relations, which are mostly represented by a weight matrix added into the model, are generally used to measure spatial interconnections. In this study, a weight matrix for the NUTS level 2 regions in Turkey is developed and added into the models. As explained in detail in section 4.4.1.2, the Anselin procedure applied to the NUTS level 2 regions of Turkey with regard to income per capita. Finally, two spatial models are selected for the case of Turkey; namely, SAR and SEM for the unconditional convergence models and only SAR for the conditional models, except the conditional model involving the variable of 'electricity consumption per person' as SEM is more explanatory for this model. Also, the results of nonspatial models are presented in order to allow comparing spatial and nonspatial models.

Following the recommendations of Baltagi (2005), Anselin (1998), Islam (1995) and Elhorst (2010 and 2014), all models run with panel data regression with fixed effects. The models are applied to the 26 NUTS level 2 regions of Turkey in a timeseries data from 1980 to 2018 and all prices are fixed according to prices in 1981.

SAR is a model demonstrating whether there is a spatial impact depending or determining regional development. It assumes that impacts of the neighbouring (or close-

by) regions are stronger than those in farther regions. SAR is a very common model to measure autoregressive errors between the neighbouring regions, as well as lags of variables. If the autoregression is justified by the model, it confirms determining impact of the spatial pattern on the regional convergence.

For unconditional SAR model, following equation is estimated:

$$\Delta LnY = \rho W \Delta LnY + \beta_0 - \beta_1 Ln[Y_{i,t_0}] + u_{it}$$

Where W is a weight matrix indicating neighbouring relations (herein a matrix 26x26) and ρ is an autoregressive parameter measuring the effect of neighbouring regions. If ρ has statistically significant value, it would show the existence of autoregressive spatial effect. Positive ρ indicates a positive correlation between neighbouring regions while a negative value stands for the reserved correlation.

For the conditional SAR model, following equation is estimated.

$$\Delta LnY = \rho W \Delta LnY + \beta_0 - \beta_1 Ln\left[Y_{i,t_0}\right] + \beta_2 Ln\left[n_{i,t}\right] + \beta_3 Ln\left[s_{i,t}\right] + \beta_4 Ln\left[g_{i,t}\right] + \beta_5 Ln\left[e_{i,t}\right] + \beta_6 Ln\left[f_{i,t}\right] + u_{it}$$

Where -*i* is coding the region and *t* goes for year- *Y* is GDP per capita; *n* is the share of population*; s* is savings per person; *g* is public investments; *e* is electricity consumption; *f* is export/import ratio. Given the data availability for different years, conditional variables are tested one by one and a dummy variable representing the economic crises are added where it provided a more significant result.

The second model, SEM, measures spatial influence through the error terms of the model. In other words, the model assumes the unexplainable impact embedded in the error term is indeed a spatial impact. SEM basically provides evidence whether the dependent variable moves together with neighbouring regions. In this way, it provides a tool to measure the spatial spill-over effect among neighbouring regions. In this study, unconditional SEM is estimated by using following equation.

$$\Delta LnY = \beta_0 - \beta_1 Ln\left[Y_{i,t_0}\right] + u_{it}$$
$$u = \lambda W_u + \varepsilon$$

Where λ, which is embedded into the error term, measures the spatial dependency of the neighbouring regions. As usual, β_1 stands for the degree of convergence. For the conditional model, the equation is extended as following:

$$\Delta LnY = \beta_0 - \beta_1 Ln\left[Y_{i,t_0}\right] + \beta_2 Ln\left[n_{i,t}\right] + \beta_3 Ln\left[s_{i,t}\right] + \beta_4 Ln\left[g_{i,t}\right] + \beta_5 Ln\left[e_{i,t}\right] + \beta_6 Ln\left[f_{i,t}\right] + u_{it}$$

$$u = \lambda W_u + \varepsilon$$

Similar to the conditional SAR model, *n* stands for the share of population, *s* for savings per person, *g* for governmental investments, *e* for electricity consumption and *f* for export-import ratio. The models, once again, are applied to the NUTS level 2 regions in a timeseries data (1980-2018) and dummy variable representing economic crises are added to the model where it offers more significant results.

Lastly, it is notable to mention that the SAC[10] and SDM[11] models are also applied to same dataset for same regions and time-series. However, these models do not mostly provide significant results (the results of these two models are available in appendix B). Therefore, following section compiles the results of non-spatial, SAR and SEM models and provides main findings based on the conditional and unconditional versions of these three models.

[10] SAC attempts to combine SAR and SEM models by measuring spatial dependency in both, dependent variable and error term. As it is a common case, SAC should be neglected in the case that SAR and/or SEM is significant (basic results is available in appendix C). SAC can be estimated by following equation:

$$y_{i,t} = \rho W y_t + X_t \beta + \mu_i + v_t$$
$$where\ v_t = \lambda W v_t + \varepsilon_t$$

[11] SDM is a spatial autoregressive model measuring not only spatially lagged dependent variable and explanatory variables, but also spatially lagged explanatory variables. Different from SAC, it does not focus on error term but add another variable to measure outcomes and impact of neighbouring regions, i.e. measuring not only spatial dependency with neighbouring regions but also the same factor within the neighbour regions (basic results is available in appendix C). SDM can be estimated by suing this equation:

$$y_{i,t} = \rho W y_t + X_{it} \beta + W X_t \varphi + \mu_i + v_t$$

4.4.2. Results and Findings

In this section, the results of econometric analyses are summarised with emphasis on the main findings, which are concluded in the conclusion session. Nonspatial and spatial convergence analyses are applied to the NUTS level 2 regions of Turkey in an approximately four-decade period, from 1980 to 2018. Following the options detailed in previous two sections, the models are applied are listed below:

- Unconditional beta convergence models are applied for the entire period from 1980 to 2018. The spatial models approved by the Anselin procedure for the unconditional convergence analysis, SAR and SEM, are also undertaken in order to measure the spatial impact on the regional development in Turkey.
- Unconditional spatial and nonspatial beta convergence models are applied to the subperiods of Turkish liberalisation. There are theoretically five subperiods in Turkish liberalisation; namely, 1980-88, 1989-94, 1995-2001, 2002-07, 2008-18. However, there was a data gap for the period from 2002 to 2007 as the fact that TUIK does not provide the national accounts data for these years. As data are missing for two out of six years, last two subperiods are merged in the analyses and the last period is constituted from 2002 to 2018.
- Conditional analyses are applied with additional variables; namely, share of population, savings per person, governmental investments per person, electricity consumption of the region and export-import ratio of the region. Similar to other models, these models are applied to entire timeseries and subperiods. Besides nonspatial conditional models, the Spatial Autoregressive Model (SAR) is applied to the conditional analysis as it is identified as significant for conditional models. Only exception is the model with 'electricity consumption per person' as SEM is more explanatory for this model.
- When conditional spatial models result insignificant, a dummy variable representing the economic crises is added into the models to measure whether conditional variable is affected by economic recessions. In some cases, this approach provided a more significant result.
- As explained in detail in the previous sections, all the beta convergence models run as panel-data regression with fixed effect.

4.4.2.1 Results of Unconditional Models

Table 4.12 shows the results of the nonspatial beta convergence models for entire time series from 1980 to 2018. The β_1 coefficient represents whether there is a converging trend in regional disparities when it is negative and statistically significant. β_1 is significant and have negative values in all three models, which means there is a convergence between regions. However, absolute value of the β_1 provides insights for the speed of the convergence; in addition, the results of *half-life* demonstrate how many years later this economy would hypothetically achieve at its steady point; in other words, when regional disparities would be removed. Therefore, it should be noted that convergence rates are significantly low[12] and speed of convergence is quite slow where regional evenness can be achieved from around 200 years to 800 years based on the results of three models.

Table 4.12. Unconditional β-convergence (Nonspatial and spatial, 1980-2018)

	Non-Spatial	SAR	SEM
R^2 (overall) ***R^2 (between)***	0.0007 0.2109	0.1018 0.6168	0.0930 0.9125
σ^2	0.08173138 (4.15) **	0,0039779 (20.25) **	0.0039254 (20.19) **
Log-likelihood	-	1104.4673	1106,2544
# obs	832	884	884
β_0	0.1561952 (2.44) **	-	-
β_1	**-0.0567114** (-2.15) *	**-0.1163685** (-5.83) **	**-0.2018516** (-6.19) **
ρ	-	0.7455429 (39.42) **	-
λ	-	-	0.7583858 (40.39) **
Result & Half-life (year)	Convergence (403.66)	Convergence (190.49)	Convergence (104.53)

** Significant at %1 level | * Significant at %5 | X insignificant

For the spatial models, spatial autocorrelations and interdependencies – based on the results of rho (ρ) and lambda (λ) – are statistically significant and positive. This

[12] Convergence rates are ‰1,7 for nonspatial model, 3,6‰ for SAR and 6,6‰ for SEM. The rate is expected to be observed around 2% for an efficient convergence (Barro y Sala-I Martin, 2004: 469).

confirms the spatial impact on the regional development. In other words, the changes in income level of a region are correlated with the changes in neighbouring regions. In addition, beta coefficients are negative and statistically significant as expected for converging economies. The results of SEM indicate relatively faster convergence (half-time is 104.53 years) compared to nonspatial and SAR models (half-times are 403.66 and 190.49 years respectively). For the spatial models, higher *log-likelihood* value is an indicator for more coherent results; thus, SEM can statistically be seen as the most binding approach for unconditional models even though differences between log-likelihood values are very small.

Table 4.13. Unconditional β-convergence (Nonspatial and spatial, 1980-1988)

	Non-Spatial	SAR	SEM
R^2 ***(overall)*** R^2 ***(between)***	0,0047 0,0635	0,1001 0,7158	0,0893 0,6656
σ^2	0,08677911	0,004407 (9,36) **	0,0044065 (9,32) **
Log-likelihood	-	230,7017	230,3066
# obs	156	182	182
β_0	-0,3347559 (-0,99) X	-	-
β_1	**0,145226** (1,06) X	**-0,3311836** (-4,98) **	**-0,3459695** (-4,91) **
ρ	-	0,4316718 (5,47) **	-
λ	-	-	0,4482236 (5,45) **
Result **Half-life (year)**	Divergence Insignificant	Convergence (12,06)	Convergence (11,43)

** Significant at %1 level | * Significant at %5 | X insignificant

The three models are also applied in the subperiods of Turkish liberalisation. For the period of 1980-88 (table 4.13), nonspatial model ends up insignificant while spatial models achieved one of the fastest convergence rates (around 6% for both SAR and SEM with around 12 years of half-time). This is actually a very common phenomenon for this type of models when time series data cover a short period. Thus, this convergence rate can be a bit manipulated as it is depended to the short, only 8-year, period. On the other hand, positive autocorrelations and interdependency between neighbouring regions are

once again justified following the spatial parameters of SAR and SEM. In these models, the level of spatial impact is relatively lower than the models applied to entire time-series as the absolute values of ρ and λ are lower.

Table 4.14. Unconditional β-convergence (1989-1994 & 1995-2001)

	Unconditional (1989-1994)			Unconditional (1995-2001)		
	Nonspatial	**SAR**	**SEM**	**Nonspatial**	**SAR**	**SEM**
R^2	0,0112 0,4233	0,1252 0,6429	0,0828 0,6635	0,0002 0,0207	0,3587 0,5781	0,3038 0,6741
σ^2	0,09811255	0,0025854 (8,51) **	0,0025618 (8,47) **	0,1209466	0,0024991 (9,18) **	0.0024454 (9,10) **
Log-likelihood	-	228,3450	228.0947	-	266,9047	265,7345
# obs	156	156	156	182	182	182
β_0	0,5987144 (3,73) **	-	-	0,1043841 (0,84) [X]	-	-
β_1	**-0,245596** (-3,74) **	**-0,1632324** (-2,86) **	**-0,2177122** (-2,79) **	**-0,0441009** (-0,86) [X]	**-0,1526861** (-3,79) **	**-0,2623928** (-3,58) **
ρ	-	0,7486231 (16,83) **	-	-	0,7858129 (21,71) **	-
λ	-	-	0,7654751 (17,39) **	-	-	0,8245721 (24,41) **
Result & Half-life	Convergence (14,76)	Convergence (23,34)	Convergence (16,94)	Convergence Insignificant	Convergence (29,28)	Convergence (15,94)

** Significant at %1 level | * Significant at %5 | [X] insignificant

Analyses of the periods of 1989-94 and 1995-2001 have very similar results with the previous period (table 4.14). All models have high convergence rates and half-life values: 14.8 years for nonspatial model for the period 1989-94, 23.3 and 29.3 years for SAR and 16.9 and 15.9 years for SEM respectively for 1989-94 and 1995-2001. In both periods, spatial impact is more deterministic than the previous period as rho and lambda are significant, positive and notably higher.

Table 4.15 shows the results of the unconditional beta convergence models for two periods, 1980-2001 and 2002-2018. As there is a data gap in the dataset, number of observations for the period of 2001-2007 is not adequate to achieve at a significant result. Therefore, last two subperiods are merged and the models applied to the period from 2002 to 2018. This data deficit offers a new opportunity as this breakout exactly matches an important power change in Turkish politics. While the period of 1980-2001 corresponds to the Turkish liberalisation before AKP came to power, the subsequent period is fully

covered by the AKP's ruling power. In this way, a comparison of the performance of AKP's government with the previous ones would be possible.

Table 4.15. Unconditional β-convergence (1980-2001 & 2002-2018)

	Unconditional (1980-2001)			Unconditional (2002-2018)		
	Non-Spatial	**SAR**	**SEM**	**Non-Spatial**	**SAR**	**SEM**
R^2 ***over.*** R^2 ***betw.***	0,0004 0,1011	0,2054 0,5524	0,1625 0,6592	0,0041 0,1367	0,1229 0,6009	0,1128 0,9462
σ^2	0,10024706	0,0035192 (15,55) **	0,0034795 (15,45) **	0,04365061	0,0043432 (13,03) **	0,0043079 (12,99) **
Log-likelihood	-	689,2863	687,6190	-	439,6819	439,6159
# obs	494	520	520	338	364	364
β_0	0,1218126 (1,31) [X]	-	-	0,2064467 (3,00) **	-	-
β_1	**-0,0479435** (-1,26) [X]	**-0,1900711** (-6,15) **	**-0,2541803** (-5,95) **	**-0,069526** (-2,46) **	**-0,1107849** (-4,00) **	**-0,2016805** (-4,04) **
ρ	-	0,6996846 (24,76) **	-	-	0,7384983 (25,35) **	-
λ	-	-	0,7278974 (25,94) **	-	-	0,7506591 (25,81) **
Result Half-life (year)	Convergence Insignificant	Convergence (65,76)	Convergence (47,27)	Convergence (134,66)	Convergence (82,65)	Convergence (43,08)

** Significant at %1 level | * Significant at %5 | [X] insignificant

The results of the nonspatial and SAR models for 2002-2018 are similar to the models applied in entire timeseries. Although β_1 coefficients are statistically significant and have negative values in both models, convergence rates are significantly low. This indicates slow convergence between regions with 135 and 83 years of half-time. However, the results of SEM are notably different as it ends up faster convergence with 2% convergence rate and 43 years of half-time. This difference justifies a strong interdependency between neighbouring regions.

It should be noted that SEM is commonly defined as an optimum model for unconditional convergence models. Given the fact that there is only one independent variable, unconditional models express the undefined interactions among regions part of the error term. SEM takes this undefined effect in the error term as the result of spatial interactions. This mathematical assumption commonly introduces the Spatial Error Model (SEM) as an optimum option and more likely with the highest convergence rate.

In our analysis, unconditional models end up with a similar result as stated and SEM achieves at the highest convergence rate with significantly high parameter of spatial impact.

When comparing the period of 1980-2001 before and after the 21st century, results of nonspatial and spatial models, where significant, are surprisingly similar. SAR and SEM, each in itself, result very similar convergence rates and half-time for 1980-2001 and 2002-2018, 65.8 and 82.7 years for SAR and 47.3 and 43 years for SEM respectively (table 4.15). Even though liberal policies have been applied in a systematic way during the first two decades of 21st century (e.g. opening the international trade, enhancing the scope of international trade towards different parts of the world, massive number of privatisations, establishment of flexible labour markets, fiscal liberation and so on), there is no clear evidence to show decreasing regional disparities based on the spatial convergence models. In other words, accelerated liberalism and open economy conditions do not create a notable impact on the regional convergence.

4.4.2.2 Results of Conditional Models

In this section, the results of the nonspatial conditional beta convergence models are elaborated. As mentioned in section 4.4.1.4, five variables added into the models. These variables, theoretical assumptions for involving them and periods of analysis are listed below.

- *Share of population (n)*: it is added into the model to measure whether human capacity and scale of the settlements have an impact on the regional convergence. Data cover entire timeseries, from 1980 to 2018.
- *Savings deposits per capita (s)*: motivation is to see the impacts of investments/new capital on the regional convergence; however, this indicator is not available. There are two indicators, savings and electricity consumption, are added to the model to approximately replace the investments. Also, it should be noted that taking savings equal to investments is a very common neoclassical assumption. In our analysis, savings data are available since 1988.
- *Electricity consumptions per capita (e)*: As mentioned above, this indicator is added to theoretically replace the investments. Information on the electricity consumption is available since 1995.

- *Export-import ratio (f)*: It is added to the models to measure whether and how exporter regions contribute to removing the regional gaps. Foreign trade data are available in more recent years, from 2004 to 2018.

Table 4.16. Results of Nonspatial Conditional β-convergence Models

	Nonspatial (1980-2018) *Population %*	Nonspatial (1988-2018) *Savings pc*	Nonspatial (1999-2018) *Gov. Inv. pc*	Nonspatial (1995-2018) *Electricity Cons.*	Nonspatial (2004-2018) *exp/imp ratio*
R^2	0,0013 0,2574	0,0214 0,2854	0,6684 0,1288	0,0446 0,0036	0,0102 0,1889
σ^2	0,08272243	0,08264723	0,03883982	0,07497135	0,04370555
#obs	832	650	364	468	312
β_1	**-0,0299898** (-1,02) [X]	**-0,1892962** (-5,48) **	**-0,0825139** (-2,19) *	**-0,6294157** (-4,63) **	**-0,1206777** (-3,41) **
β_2 ***(%pop)***	-0,0042103 (-2,15) *	-	-	-	-
β_3 ***(savings)***	-	0,0035222 (8,11) **	-	-	-
β_4 ***(gov)***	-	-	-0,0085543 (3,50) **	-	-
β_5 ***(electricity)***	-	-	-	-0,0283373 (5,06) **	-
β_6 ***(exp/imp)***	-	-	-	-	-0,0043719 (-2,35) *
β_7 ***(dummy)***	-	-	-0,1447864 (-24,79) **	-	-
Result **Half-time**	Convergence Insignificant	Convergence (89,18)	Convergence (128,78)	Convergence (13,97)	Convergence (70,07)

** Significant at %1 level | * Significant at %5 | [X] insignificant

Table 4.16 presents the results of nonspatial and conditional beta convergence models. Different from than others, the model including governmental investments consists of a dummy variable representing the economic crises because this model could achieve a significant result only in this way. This factor is tested with other models, yet did not provide more coherent results. In addition, there is only one insignificant model that contains the share of population. This model is insignificant based on the result of t-test of β_1 parameter. Also, the impact of population density is neglectable following the fact that the absolute value of parameter β_2 is very low.

Three models included additional independent variables (namely, the ones including savings, governmental investments and export-import ratio) are significant with

low convergence rates. These results are very similar to the outcomes of unconditional models; consequently, there is no significant change in the convergence speeds. It is also observable in the beta parameters as all three variables have very little impact on the regional convergence. Within these three models, the most surprising results observed for the model including governmental investments. These investments, by nature, are expected to affect the regional unevenness in a positive way. However, the impact of governmental investments is almost neglectable. In other words, governmental investments are not efficiently planned to balance regional unevenness.

The most notable results observed in the model including electricity consumption. For a long period from 1995 to 2018, the model indicates a fast convergence with statistically significant results. Additionally, the impact of the conditional variable, *electricity consumption per capita*, is remarkable based on the absolute value of β_5. Furthermore, this combination achieves at 14-year of half-time that corresponds one of the fastest convergence analyses. Following the basic assumptions, these results provide a clear evidence on the strong impact of the energy usage, aka investment capacities.

Table 4.17 shows the results of the spatial (SAR and SEM) β-convergence models. First of all, the model with the export-import ratio is once again insignificant; thus, the regions relatively more open at international level do not have a notable impact on the regional convergence. In addition, two models resulted insignificant as regards the parameters of independent variables; namely, SAR with the share of population and SEM with the electricity consumption. On the one hand, spatial impact is confirmed in both insignificant models; on the other hand, additional variables do not make a remarkable difference and convergence speeds remain very similar with the unconditional models. Eventually, these two variables do not have a significant impact on the regression models when the spatial impact involved in the models. This brings an interesting outcome as the fact that electricity consumption has a very notable impact and accelerated the convergence speed in the nonspatial model, it results insignificant in the spatial model with very low impact based on the absolute value of β_5. This shows energy consumption, aka investments, are not related to existing spatial autocorrelation between regions.

Table 4.17. Results of spatial (SAR and SEM) conditional β-convergence analyses

	SAR (1980-2018) *Population %*	SAR (1988-2018) *Savings pc*	SAR (1999-2018) *Gov. w/dummy*	SEM (1995-2018) *Electricity Cons.*	SAR (2004-2018) *exp/imp ratio*
R^2	0,1065 0,0523	0,1345 0,4094	0,3986 0,3773	0,1079 0,0902	0,0011 0,0942
σ^2	0,0039767 (20,25) **	0,0036352 (18,14) **	0,004077 (13,95) **	0,0039362 (15,48) **	0,0005856 (12,44) **
#obs	884	702	416	520	338
β_1	**-0,117364** (-5,87) **	**-0,1039893** (-5,04) **	**-0,1401354** (-5,17) **	**-0,1820954** (-4,22) **	**-0,0011732** (-0,11) X
β_2 ***(%pop)***	-0,015573 (-0,91) X	-	-	-	-
β_3 ***(savings)***	-	0,0016732 (2,32) *		-	-
β_4 ***(gov)***	-	-	-0,0073072 (-2,93) **	-	-
β_5 ***(electricity)***	-	-	-	0,0057421 (0,27) X	-
β_6 ***(exp/imp)***	-	-	-	-	0,0024421 (-0,55) X
β_7 ***(dummy)***	-	-	-0,064068 (-5,44) **	-	-
ρ	0,7446542 (39,28) **	0,7717617 (40,11) **	0,004077 (13,95) **		0,77698 (26,30) **
λ	-	-	-	0.7896863 (36.43) **	-
Result Half-time	Convergence (188,77)	Convergence (170,44)	Convergence (73,46)	Convergence (132,99)	Convergence Insignificant

** Significant at %1 level | * Significant at %5 | X insignificant

The model with savings is significant and support the regional convergence. However, the convergence rate is very low and impact of the savings on the convergence speed is almost neglectable. It is possible to confirm this low impact in comparison with the unconditional models as the convergence speed barely changed. On the other hand, the spatial model involving the governmental investments, which is only significant in the case that a dummy variable representing the years of economic recessions added, results with a low impact on the convergence speed. In addition, the spatial parameter rho has a very low value that implies a low spatial impact. These results confirm that governmental investments have not been planned in accordance with the uneven development and aiming at balancing the regional disparities.

4.5. Distribution Dynamics Approach

The regression-based approach to the convergence analysis has specific limitations and therefore there are critiques raised in the literature. Main critiques focus on the mathematical assumptions of the model. First of all, the regression models can easily deliver a high convergence rate with significant outputs although reasons would be unrelated to real dynamics of economic growth. Secondly, these analyses can often mislead with favourable convergence trends since economic polarisation is not taken into account. A model applied to a polarised economy can easily result convergence; however, this would not mean decreasing disparities in this economy (Quah, 1995).

Magrini (2007) discusses abovementioned limitations under two issues: 'the problem of open-ended alternatives' and 'the lack of informative content'. Firstly, the regression model is not able to test the validity of interpretations as the fact that different theoretical interpretations can justify a result of convergence. Different scenarios or growth dynamics are not taken into consideration by the regression models. In addition, these models only concentrate on the behaviour of a representative economy and seeks the best way to converge toward its own steady state. Therefore, it does not provide evidence to discriminate different growth theories. Secondly, the model is not informative. Specifically, the convergence is confirmed by the model in the case there is a negative relationship between growth rates and initial values. However, it does not offer any explanation in terms of the cross-sectional distribution of economies. Also, a diverging cross-sectional distribution can be taken place when a negative relationship exists, which implies a totally misleading result (Magrini, 2007).

A nonparametric distribution dynamics approach is suggested as an alternative method since this approach elaborates the evolution of the entire cross-sectional distribution of per capita income, rather than focusing on the representative economy, through using stochastic kernel to assess not only the external shape but also the intra-distribution dynamics (Magrini et.al. 2013 and 2015). Therefore, kernel density estimation is an efficient technique that provides fruitful insights with regards to the convergence trends, internal distribution and evolution of overall regional structure.

4.5.1. Kernel Density Estimation

Kernel density estimation (KDE) is an approach to the convergence analysis elaborating the evolution of cross-sectional distribution of per capita income, using stochastic kernel estimation to describe both, change in its external shape and intra-distribution dynamics. Therefore, KDE provides information on how one part of the distribution changes in respect to another. This enhanced understanding facilitates connecting the convergence trends with the theoretical interpretations. Therefore, KDE is increasingly preferred because regression-based approaches can mislead owing to its emphasis on the behaviour of a representative economy where they ignore the effect of aggregate fluctuations on the evolution of income disparities.

When we define $x_i(t)$ as the level of per capita GDP of a region i at time t where relative to the average, it is assumed that $x_{i,s}$ admits a density and a function $f(x_t)$ is a probability measure. Eventually, the function is the distribution of x_t in this density where the equation is written as following:

$$f_{x(t+s)}(A) = \int_{-\infty}^{\infty} M_{t,s}(x, A)\, f_{x(t)}\, d_x$$

Where $M_{t,s}$ is a stochastic kernel that maps the density at time *t* into the density at time *t+s* and tracks where point in $f(x_t)$ end up in $f_{x(t+s)}$. Following the Markov and time homogeneity assumptions, if $f(x_t)$ displays a tendency towards one-point mass, then we can conclude that there is convergence towards equality. If, on the other hand, the stationary distribution displays a tendency towards a two-point or bimodal measure, it interprets that this would be a manifestation of income polarisation. In addition, the results of KDE provide empirically comparable mappings based on the density, the level of income and their connections.

Following section summarises the results of KDE applied to NUTS level 2 in the case of Turkey. Data used in this analysis is same with the unconditional models of beta convergence; GDP per capita from 1980 to 2018. Also, similar to the regression models, KDE is applied to the subperiods of Turkish liberalisation as to assess convergence trends and distribution dynamics for these specific years.

4.5.2. Results and Findings

Figure 4.16 presents the results of the KDE for the entire timeseries from 1980 to 2018 including graphic and histogram versions of the estimations. It should be firstly underlined that the main figure is highly polarised and shows very weak tendency of convergence only for the middle peak as it is under the normal density distribution. Other two peaks are dispersed and remarkable diverged from each other.

There are three masses indicating the three densities of income groups: (1) The highest density observed for the low-income 'poor regions' (under the average income); (2) the medium density is already above average ('middle regions'); and (3) the high-income 'rich regions' doubled the average and polarised beyond the normal density curve. The income range of the three-pole distribution is high, which is fluctuating between half and double of the national income. While there is relatively smoother transition between the high- and middle-income masses, the high-income mass is further dispersed. The big income gap between the highest and lowest income groups is significantly taken attention. Moreover, there is another gap between these two groups with regard to the size of the masses. Majority of the regions are positioned under the low-income mass while very little number of regions achieved at the high-income group where their average income is twice higher than the national average.

KDE – 1980-2018 (graph)

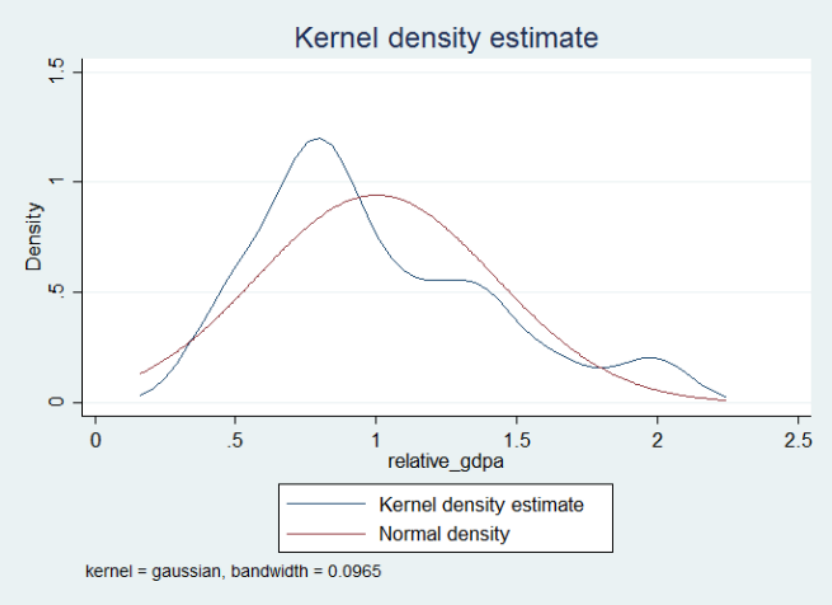

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Figure 4.16 (cont.)

KDE – 1980-2018 (histogram)

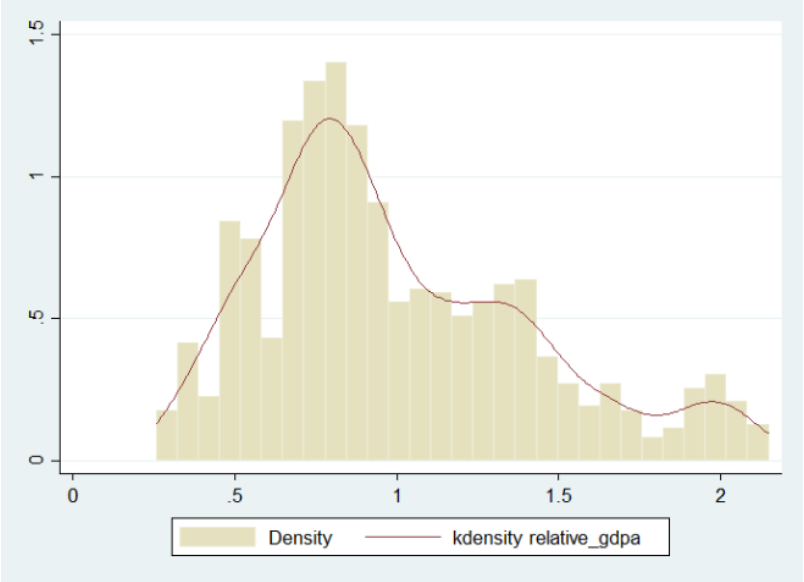


Figure 4.16. Results of Kernel Density Estimations (1980-2018)

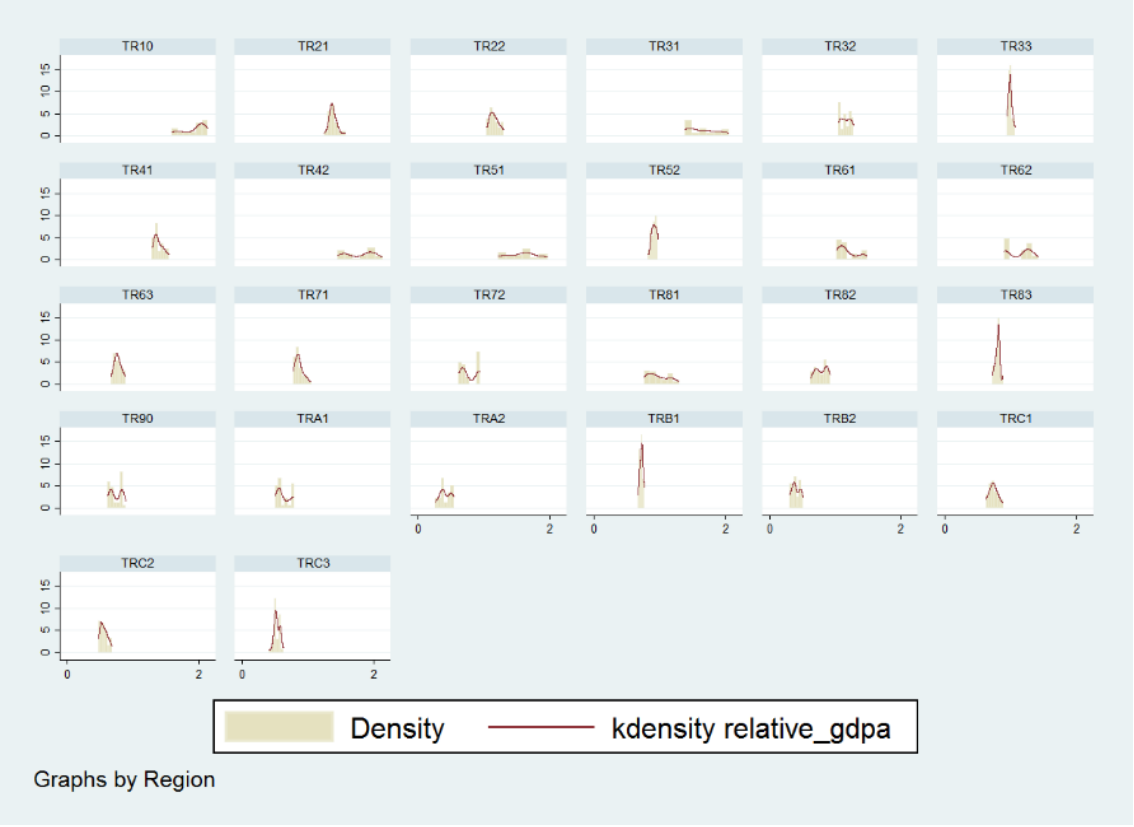


Figure 4.17. Positions of Regions in Kernel Density Estimation (1980-2018)

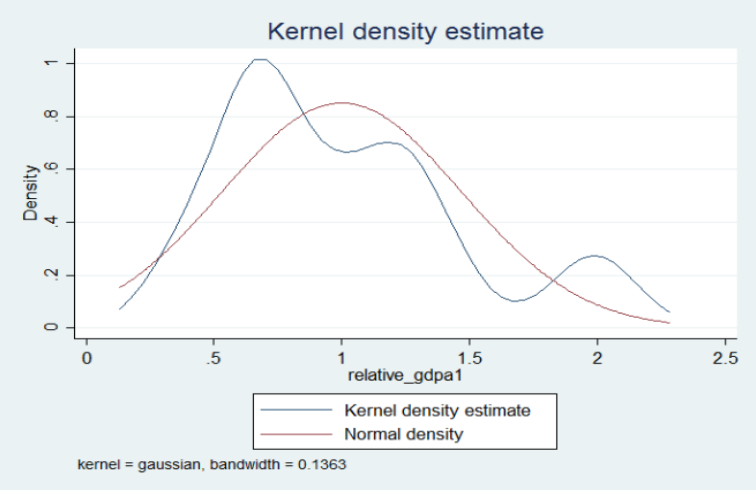
Figure 4.17 demonstrates the positions of 26 NUTS level 2 regions in the kernel estimation (for the distributions by regions for all the analysed periods, please see appendix C). The regions hosting metropolitan cities are positioned relatively closer to high-income groups, which have around twice more income than average; namely. TR10, TR31, TR42 and TR51. On the other hand, eastern regions are positioned with the least income level while several northern regions follow them.

The distribution during the period of 1980-88, similar to the distribution observed for the entire timeseries, demonstrates a three-peak distribution (figure 4.18). Opposite to β-convergence results, this distribution is far from converging to its steady state. There was a polarisation based on the three-mass distribution, and particularly based on the high-income regions disjoint grow. This type of extreme distributions, where the poorest and richest regions are positioned above the normal density line, can be very misleading for the beta convergence analysis as Quah (1996), and Magrini (2007) emphasise. As the regression model tends to normalise the distribution, this unequal distribution can deliver a negative beta parameter and be considered as a converging economy.

Different from the figure covering the entire timeseries from 1980 to 2018, a sizeable dip appeared between medium- and high-income masses, which can be a tendency for an opening gap between the richest regions and medium and poor parts of income range. Moreover, the low- and middle-income masses have slightly shifted towards lower income levels compared to the general figure covering the entire timeseries, which indicates both groups have relatively less income

The distribution of the period 1989-94 has differently two-pole (see figure 4.19). Compared to previous period, the middle-income group disappeared and the trend of convergence is stronger. Aligned with the results of regression-based models, the tendencies towards converging economies are observed in the 1990s; in addition, overall distributions given by the kernel estimations are more balanced. Both, low- and high-income groups are apt to converge toward the average income. Consequently, the income range is narrowed.

KDE – 1980-1988 (graph)



KDE – 1980-1988 (histogram)

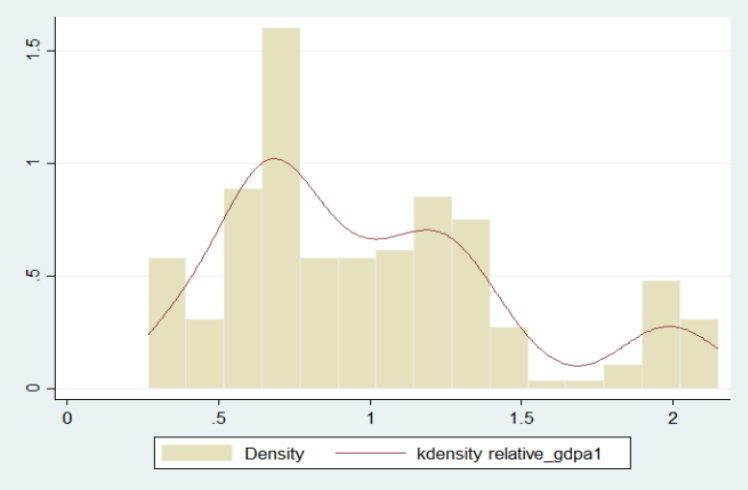


Figure 4.18. Results of Kernel Density Estimations (1980-1988)

KDE – 1989-1994 (graph)

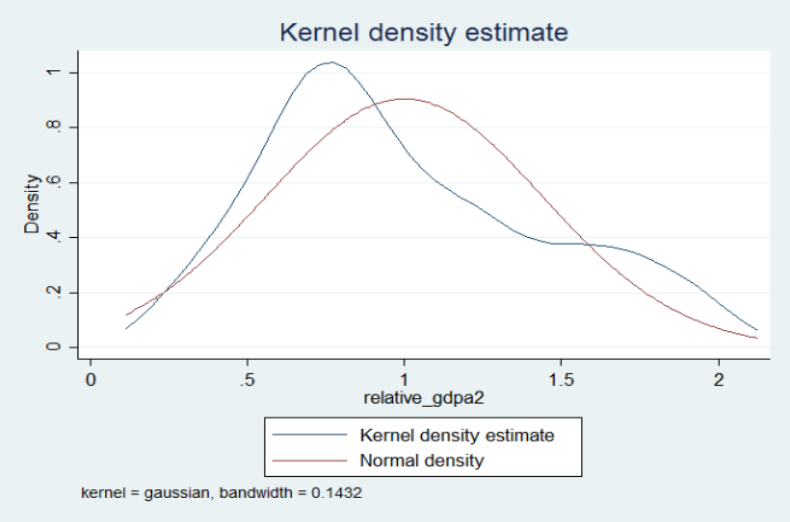


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Figure 4.19 (cont.)

KDE – 1989-1994 (histogram)

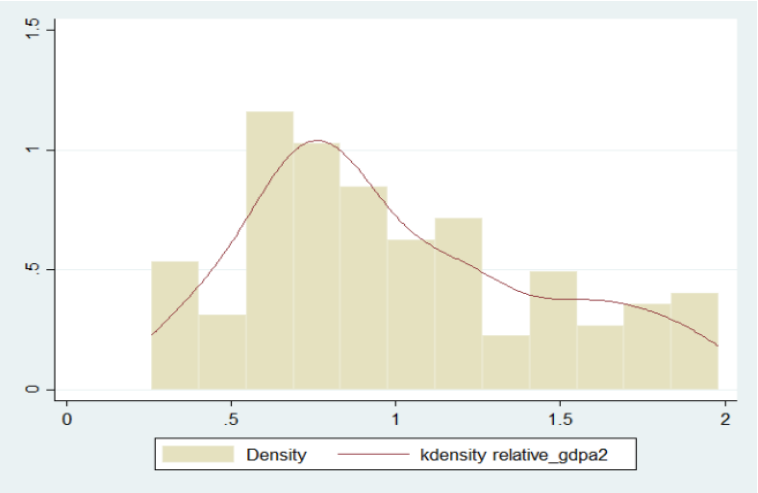

Figure 4.19. Kernel Density Estimations (1989-1994)

In the period of 1995-2001, low- and middle-income regions slightly converged to the average income and the gap between these two masses got smaller (figure 4.20). Also, high-income regions accumulated under the doubled average for the first time, and moreover, density differences between peaks decreased. This distribution clearly represents the strongest convergence trend. However, the convergence effect is more based on the movement of high-income group toward middle-income group rather than an increase in the poorer regions' income level. In other words, convergence trend does not take place following the interpretations of the convergence hypothesis, but is more likely based on the decreasing growth of high-income regions. In the meantime, poor regions remain in a very similar position with the other periods.

KDE – 1995-2001 (graph)

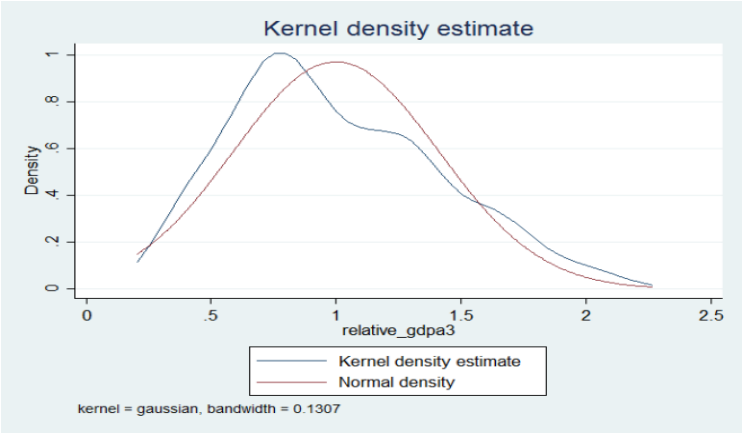

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Figure 4.20 (cont.)

KDE – 1995-2001 (histogram)

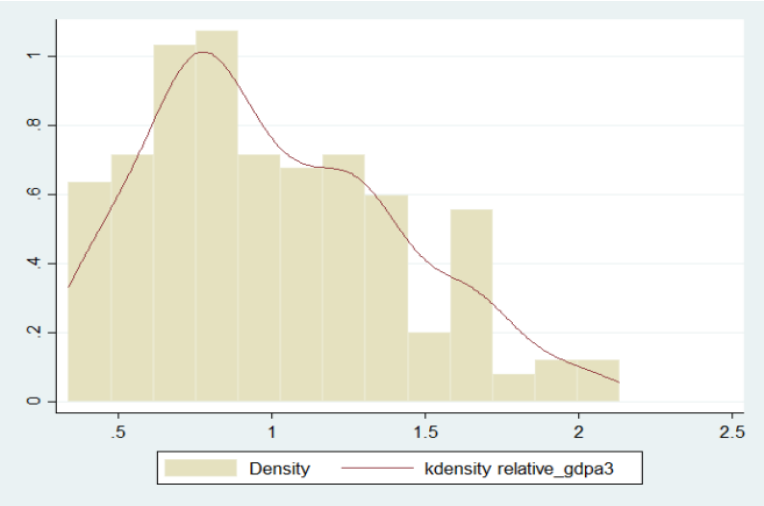


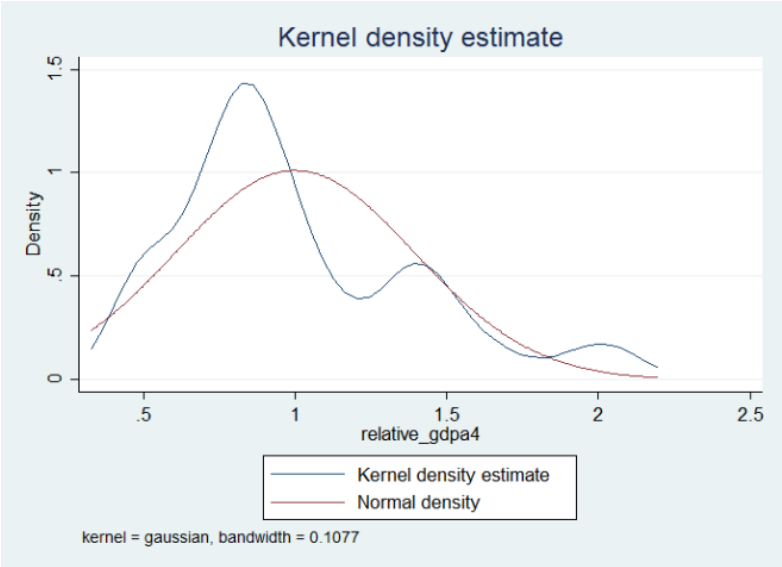
Figure 4.20. Kernel Density Estimations (1995-2001)

From 2002 to 2018, the distribution takes close shape to overall trend with strong tendency of polarisation (figure 4.21). The low- and high-income regions are dispersed from each other in comparison with the previous periods. Gaps between three groups remain similar to the distribution observed for entire timeseries where low-income group positioning under the average income, middle-income group concentrated closer the 1.5 times average and high-income group doubled the average income. At the same time, the low-income poor group reached the highest density all over history. Distribution of income over regions takes the most polarised structure in the 21st century.

When comparing the two periods, before and after 2001 (figure 4.22), there is a significant difference although both estimation lines are similar movements. The density of the low-income regions increased by1.5 times in the period of 2002-2018 compared to the density in the former period. Additionally, 3-pole distribution has adversely changed for the first time and a fourth group under the low-income peak started to rise. Consequently, each peak is positioned in different income level and density. Middle-income group reached slightly higher income but also got smaller (lower density). When low-income 'poor' group under the average income got bigger, the lower-income 'poorest' new group just emerged with significant density accumulated around the half of average income. In other word, middle-income regions notably shrank for last two decades. A small part of this group converged to a relatively higher-income level; however, bigger part converged to the lower-income levels. This enhances the

polarisation level and ends up a very complicated distribution as the convergence between richest and poorest regions would be much more difficult under these circumstances.

KDE – 2002-2018 (graph)



KDE – 2002-2018 (histogram)

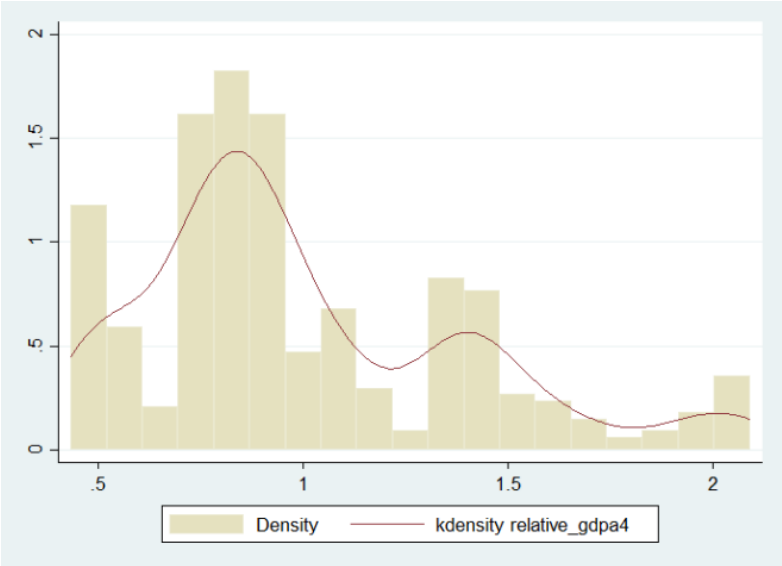
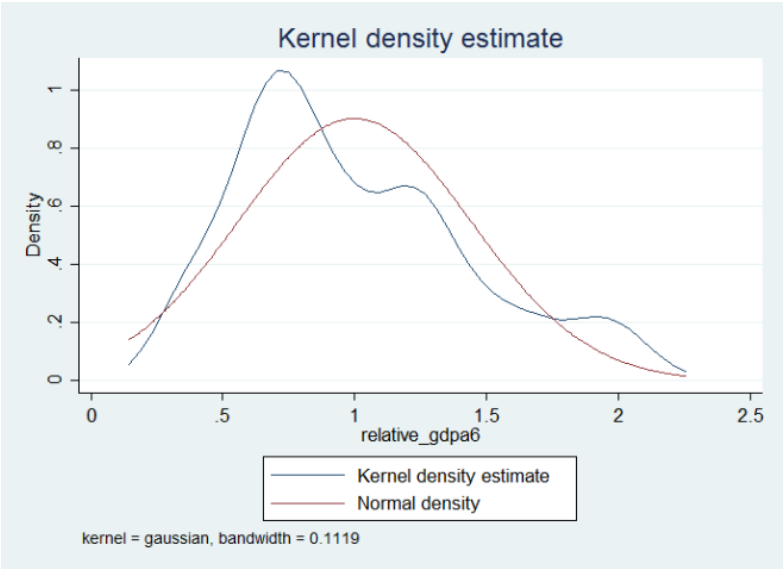


Figure 4.21. Results of Kernel Density Estimations (2002-2018)

KDE – 1980-2001 (graph)



KDE – 2002-2018 (histogram)

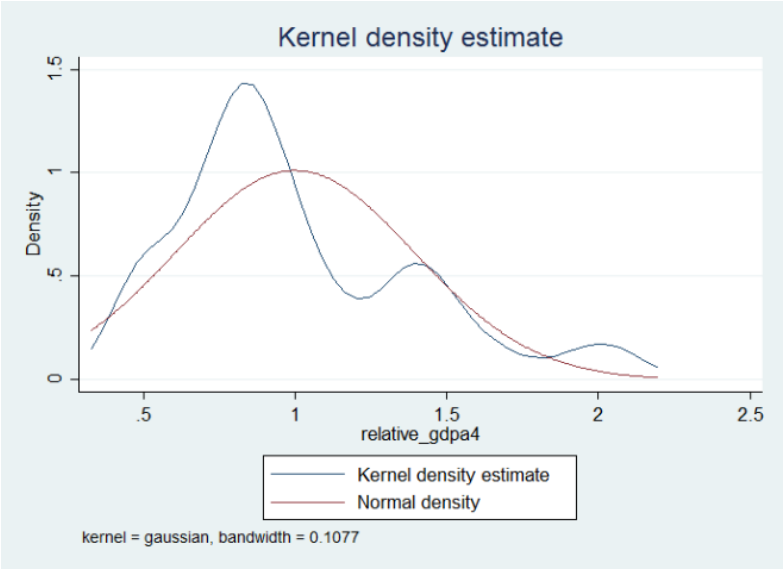
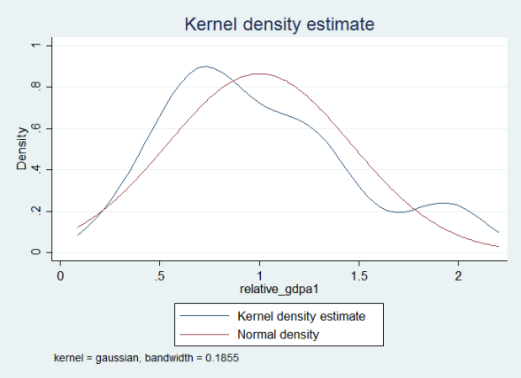


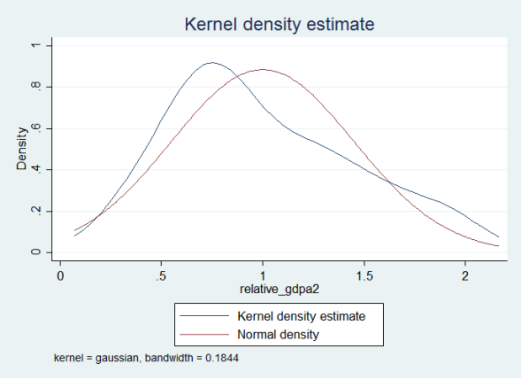
Figure 4.22. Results of Kernel Density Estimations (1980-2001 & 2002-2018)

Lastly, it would be useful to see the change in each period based on the beginning and the end of each period. In other words, if we ignore the interim evolution and if we only take two snapshots from the starting and the ending year of each period, how would be the change in each period in comparison to its initial state. In order to answer this question, kernel density estimation is applied to the years breaking the periods; namely, 1980 & 1988; 1989 & 1994; 1995 & 2001; 2001 & 2018 (as a datum for 2002 is missing), and finally 1980 & 2018. Results are available in figure 4.23.

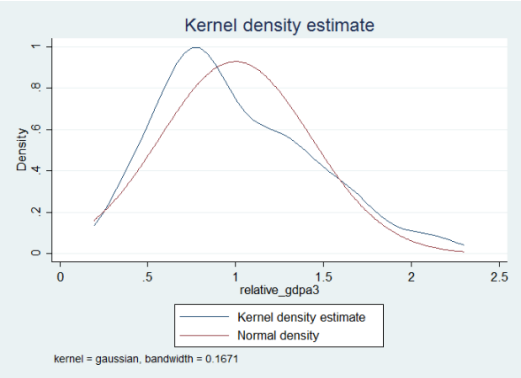
KDE – 1980 & 1988 (snapshot years)



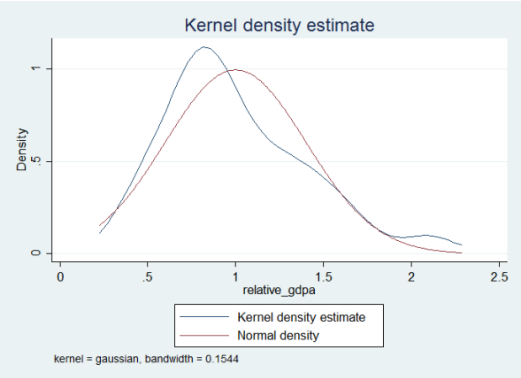
KDE – 1989 & 1994 (snapshot years)



KDE – 1995 & 2001 (snapshot years)



KDE – 2002 & 2018 (snapshot years)



KDE – 1980 & 2018 (snapshot years)

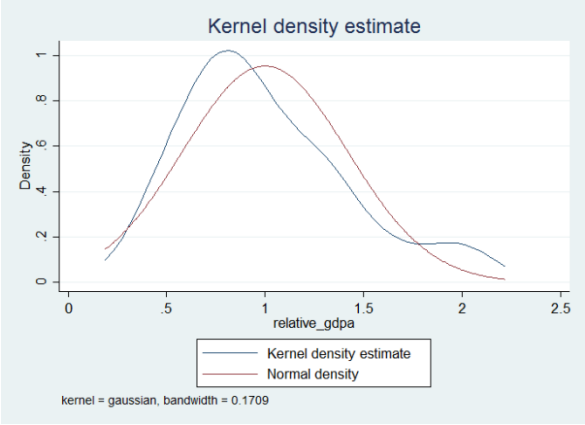


Figure 4.23. Results of Kernel Density Estimations (Only Breaking-Point Years)

When limiting the data with the initial and ending states for the analysed periods, all the results reflect more converging trends. In other words, almost all the period has a stronger convergence tendency compared to the initial state of play. Particularly, KDE covering the entire time series from 1980 to 2018 reports a two-pole distribution; but more importantly, the main mass involving the most of the regions is concentrated close to the national average. Moreover, although the high-income regions are still dispersed

and accumulated at the level doubling the national average, the main mass is more balanced and converging towards the normal density line.

The cross-sectional distribution of the subperiods based on the snapshot years also has more converging trends (figure 4.23). The dip between high- and middle-income regions disappeared and low- and middle-income groups get closer in the period of 1980-1988. The subsequent periods, 1989-1995 and 1995-2001, originally report promising convergence trends in the analysis taking into account each interim year's cross-sectional distribution. These trends get stronger in the snapshot analysis and the figures of these periods end up almost a single mass, which indicates a very strong convergence trend. Finally, the biggest change is observed for the period in the 21st century, from 2002 to 2018. While original figure is very polarised and diverged, snapshot analysis reports a promising convergence trend with two apparent masses. This figure is very similar to the figure observed for the analysis covering the entire timeseries.

The abovementioned results show that income distribution is relatively more even in comparison to the initial states of plays and there is a convergence trend in the long-term perspective. However, this trend does not gain a continuity as the fact that year-by-year evaluations tend to diverge. Eventually, the convergence speed slows down although income gap has been decreasing in comparison to the initial state of play. This indeed offers an opportunity to solve inequality issue in Turkey in the case that regional policies centred around a more even development are applied in a continuous basis.

CHAPTER 5

CONCLUSIONS

The liberalisation process that started in the 1980s created a significant impact all over the world. As it corresponds to a specific shift in the regime of accumulation and it drastically changed the modes of regulations, socioeconomic lives were drastically transformed as a result. Economic policies, production and consumption, geographies of production, social lives and spatial organisations have been amended with the rise of the political ideology of neoliberalism. Although the neoliberal policies started to be applied with expectations of rising investment, accelerating economic growth, increasing employment and reducing the inequality of income distribution, the implementations had a different outcome to that expected. Economic performance, especially in less developed countries, was poor and permanently interrupted by economic recessions. Moreover, employment rates dropped in these countries and small- and medium-sized economies became dependent on international capital inflows. Eventually, neoliberalisation was intertwined with pervasive market failures, increasing poverty, social polarisation and uneven development at both social and spatial levels.

The Turkish liberalisation has resulted in very similar outcomes. The main economic indicators – e.g. economic development, level of industrialisation, growth in agriculture and position in the world economy – have relatively worsened compared to the pre-neoliberal period. The settlement systems have been negatively affected, as well. Overpopulation in urban areas has become an important issue in parallel with the rise of rent economies. Finally, the gap between developed and less-developed regions have been widening day by day. This thesis, at this point, aims at contributing to the debate on the relationship between liberal policies and uneven spatial development.

Following parts are organised around three issues that are at the core of this thesis; namely, (1) impact of liberalisation on regional uneven development, (2) lessons-learnt regarding the connections between neoliberalisation, spatio-temporal fixes and uneven regional development, and (3) changes in the regional pattern of Turkey over time and related factors. The conclusion is finalised with policy recommendations based on the

findings of this thesis.

Impact of liberalisation on regional uneven development

The liberal policies systematically implemented since the 1980s have strongly influenced regional development in Turkey. An overall assessment of uneven regional development can be done in terms of the results of the inequality indices (see Table 4.8 and Figure 4.9). In the 1980s, from 1980 to 1988, when the Turkish economy was under systemic deregulations followed by SSAP, regional disparities grew significantly. In the following period, from 1989 to 1994, when populist policies based on the political conjuncture were dominant, all the indices notably went down and regional disparities in Turkey relatively decreased.

The short period from 1995 to 2001 exemplifies a common phenomenon in Turkey. This period presents two different movements; an economic recession, from 1995 to 1997, and a year of economic expansion in 1998-99. This fluctuant economic performance caused a fluctuant trend in the inequality indices, but the outcome was unexpected: a positive trend is observed under the circumstances of economic recession, while it was adverse in the years of economic expansion. In other words, the regional disparities slightly decreased during the economic recession, but the gap was widened once again when the economy started growing.

Subsequently, the 21st century started with an increase in regional disparities. Regional uneven development increased considerably from in the early years of the century when the liberal regulations recommended by the IMF were continued applying, which were, in fact, inherited from the previous years. At the end of this period, in 2007, all the relative indices achieved the highest levels of inequality. The most recent period, starting from 2008, shows another fluctuant trend. While uneven development decreased in the early years until 2012, this positive trend was followed by a relatively stable period until 2016. Afterwards, there was a slight increase in the level of regional disparities for the last couple of years. Since there is no more data available, it is not possible to assert whether this is a starting point for a new trend.

The state of affairs in terms of regional disparities already offers substantial insight, but the evolution of disparities is also important since one of our main concerns is the elaboration of trends of spatial income distribution in order to observe the impact of liberal policies on regional uneven development. For this, convergence analysis and the kernel density estimation (KDE) were applied to the Turkish regions by predefined

periods. These analyses show that the liberalisation project has not offered a satisfactory solution to regional uneven development. In short, inequality remains permanent (for brief summary of the quantitative analyses, please see table 5.1).

Table 5.1. Overall Summary of the Empirical Analyses

	1980-2018	1980-88	1989-94	1995-01	2002-18
Growth rate	***0,032***	0,025	-0,007	-0,0001	0,047
GINI	***0.417 - 0.402***	0.417 - 0.427	0.430 - 0.393	0.402 - 0.387	0.433 - 0.402
σ	***0.464 - 0.385***	0.464 - 0.515	0.527 - 0.454	0.462 - 0.436	0.415 - 0.385
Convergence rates (unconditional)	***0.0017 0.0036 (SAR) 0.0066 (SEM)***	Insignificant 0.0575 (SAR) 0.0607 (SEM)	0.0470 0.0297 (SAR) 0.0409 (SEM)	Insignificant 0.0237 (SAR) 0.0435 (SEM)	0.0051 0.0084 (SAR) 0.0161 (SEM)
ρ	***0.7455***	0.4317	0.7486	0.7858	0.7385
λ	***0.7584***	0.4482	0.7655	0.8246	0.7507
Result of kernel density	***Polarised (3 masses)***	Polarised (3 masses)	Converged (2 masses)	Slightly converged (3 masses)	Polarised (4 masses)

First of all, the results of sigma convergence analysis are perfectly in line with the results of the inequality indices: several phenomena – i.e. increasing disparities in the 1980s, a trend to decrease in the early 1990s, a long run of fluctuating trends starting from the late 1990s until the second decade of 21st century and finally slight raise in the regional disparities since 2012 – are confirmed by the sigma convergence analysis. Additionally, these results are also aligned with some current studies applied sigma convergence, i.e. Gomleksiz et.al. (2017), Ozgul and Karadag (2015) and Onder et.al. (2010). In general, it should be noted that sigma convergence points at a regional convergence in comparison with the starting point as it decreased from 0.464 in 1980 to 0.385 in 2018, as well as in the most of subperiods; namely, from 0.527 in 1989 to 0.454 in 1994, 0.462 in 1995 to 0.436 in 2001 and finally 0.415 in 2002 to 0.385 in 2018. To sum up, sigma convergence analysis results convergence for the three out of four subperiods and for entire time-series covering 38-year long-run.

Following the regression-based convergence models, there would be a slow convergence overall among the NUTS Level 2 regions of Turkey, once again much the same with some current work focused on the regional convergence, i.e. Ozgul and Karadag (2015), Onder et.al. (2007), Ersungur and Polat (2006) and Akdede and Erdal (2003). However, as the results of the KDE demonstrate, there is a polarisation issue in

the spatial pattern of regional inequality where there are gaps between three income groups (see figure 4.16). This is indeed a very important point since the regression-based convergence models only focus on the behaviour of the representative economy and examine whether there is a negative relationship between actual growth rates and lagging values. In this way, this approach can mislead in such cases as it fully ignores cross-sectional distribution. On the other hand, the Distribution Dynamics Approach, aka KDE, alternatively elaborates the evolution of the cross-sectional distribution of income and offers insights regarding the forms and evolution of the convergence trends. In our analysis, the regression-based convergence models deliver a slow tendency toward convergence in the case of Turkey although KDE reports a three-peak polarisation in terms of income distribution by regions.

In depth, all the unconditional beta convergence models covering the entire time series from 1980 to 2018 (namely, the nonspatial model and two spatial models, SAR and SEM) are statistically significant and point out the convergence between the NUTS Level 2 regions (see table 4.12). Unconditional models do not take into account the differences in the development levels of the regions as explanatory variables do not only measure the impact of these variables on the regional convergence, but also adding a dimension into the model identifying the regional differences in terms of economic capacity. Under these circumstances, the convergence speeds are very low, as the convergence rates change from 0.002 to 0.007 (corresponding excessive half-time, from 104 to 403 years). These rates are substantially low considering the expectation of the related literature, which is approximately 0.02. Moreover, the KDE results show a highly polarised income distribution among the Turkish regions with three concentrated masses: the biggest mass contains the low-income regions, having an income significantly below the national average. The second mass includes the regions with an income above national average, starting slightly above and extending up to 1.5 times higher than the national average. The final mass is the high-income and smallest group, with an income that doubles the national average (see figure 4.16). Also, this polarised structure does not show a strong converging trend that can relatively equalise the income distribution. On the other hand, the high- and the low-income poles are significantly diverged. The only convergence trend would be found in the middle group, showing a tendency towards normal distribution.

The results of the KDE provide insight into the internal dynamics of the convergence trends. Based on the analyses applied to the subperiods of the Turkish

liberalisation, there are convergence trends observed particularly in the periods of 1989-1994 and 1995-2001 (see figure 4.19 and 4.20). These trends are also confirmed by the convergence models, as faster convergence trends are observed for these two periods (table 4.14). The spatial models, SAR and SEM, report significantly low half-life for these periods; explicitly, 23 and 17 years for the period 1989-1994 and 29 and 16 years for the period 1995-2001, respectively. However, this converging effect is not grounded in the fast-growing poor regions, which is the main assumption of the convergence hypothesis. On the contrary, the convergence impact appears when the income level of the rich regions decreases; in fact, the richest pole almost disappears and income level significantly falls in these two short periods. At this point, the results of KDE illustrate the fact that convergence takes place when the income of rich regions decreases, mostly corresponding with the years of economic recessions. Contrary to what the convergence hypothesis says, the poor regions do not reach consistent fast-growing periods and remain permanently under the national average over years.

With regard to the two well-known hypotheses linked to the relationship between liberalisation and uneven spatial development, the *Myrdal-Hirschman* and *Elizondo-Krugman* hypotheses, the convergence analysis in the case of Turkey meets the expectations of the Myrdal-Hirschman hypothesis more closely. The positive impact of liberalism on the regional disparities is not confirmed, especially in the long-term analysis. The short-term favourable trends in the 1980s and 1990s bear mentioning, since there are faster convergence trends in these subperiods. These observations are indeed coherent with Myrdal's assumptions, as he conceives the positive impact of liberalisation in the short-term but envisions a worsened structure with a polarisation impact in the long term.

Eventually, it should be highlighted that the regional disparities in Turkey have notably increased since the beginning of the 21st century when the most radical liberalisation policies took place. The unequal regional pattern of Turkey, inherited since the 1980s, has worsened during the last two decades. Following the results of KDE, firstly, the distance between the low-income and the high-income regions has widened during this period. In addition, the density of low-income regions increased by 1.5 times in the period of 2002-18 compared to the density of previous periods. Secondly, the three-pole distribution has started changing towards the four-pole for the first time. When the low-income 'poor' group – with an income below the national average – got bigger, a new lower-income 'poorest' group just started to rise as a fourth pole with a notable

accumulated density of around half the national average. Thirdly, the second group, the 'middle-income regions', got smaller and showed a lowering density as a big part of its members converged to the 'poor' group.

It should be noted that the distribution of income by Turkish regions, in any case, has improved in comparison with the starting point. The KDE based on the snapshot years of the beginning and end year of each period reports that cross-sectional distribution of income has relatively improved, compared to the beginning states of plays. General figure covering the entire time-series data (see figure 4.23) results a two-pole distribution without any extreme density mass. The high-income regions are still dispersed and double the national average; however, middle-income group is much more balanced where its mass concentrates around the national average; furthermore, it shows a promising convergence tendency. Similar to the overall state, distributions of the sub-periods are also more balanced and converged, including the most polarised period from 2002 to 2018.

As a result, the liberal economic policies, on the one hand, have not solved the issue of uneven development; in fact, they have not created a strong trend for a more equal distribution, based on the analysis focusing on the continuous evolution of income disparities. On the contrary, the regional pattern has ended up a more polarised structure, where the number of low-income regions increased. On the other hand, the analysis based on the constant years of the beginning and the end – where the interim evolution is ignored – indicates the fact that income disparities have decreased in comparison to the initial state of play. This relative improvement would offer a chance to resolve inequality issue in the case the related policies take these facts into account and policies aiming at more even development are applied in a continuous basis.

Neoliberalisation, spatio-temporal fixes and uneven regional development

Following political economy approaches, idealised liberal markets do not exist in a pure form. It is actually a partial, polycentric and plural process where temporary policies are embedded into the neoliberal programmes in order to avoid market crushes, economic crises and socio-spatial contradictions. Particularly, following the economic recessions, the regime of accumulation forces transformations based on the temporal requirements of capital accumulation in the inherited economic and social structures, as well as the spatial configurations of production. The failure of capital accumulation, indeed, is mostly absorbed through new spatial configurations, like geographical

expansion and/or changes in the structure of production centres. One of the approaches in order to understand these changing dynamics consists of utilising the concept of 'spatio-temporal fixes', which simply refers to addressing the spatial needs of capital accumulation associated with the temporal requirements of capital, such as the level of technology, the structure of the labour market, the spatial division of labour and so on. In parallel with the empirical analyses, we also attempt to assess whether this concept would be useful to understand the Turkish liberalisation process and its partial history.

One of the objectives of this thesis indeed is to elaborate on whether the changes in Turkey's regional pattern in relation to the liberalisation process can be understood by means of the conception of spatio-temporal fixes. This should be seen as an experimental exercise that offers a particular understanding on the history of liberalisation. However, there is an evident limit for this exercise, as the definition of a spatial leg of spatio-temporal fixes requires more detailed and better elaborated data sets than what is available at the regional level. Herein, we analysed regional uneven development by the temporal shifts of the neoliberalisation project and evaluated whether the changes in the regional structure are aligned with the basic assumptions of the critical political economy approaches.

A temporal leg of the spatio-temporal fixes in Turkey can be defined through the Boratav's periodisation of the Turkish economy since he critically applies a particular Marxian approach to Turkey's economic history. Each breaking point corresponds to a crisis, the following recession and expansion as methodologically assumed. While Boratav's periodisation offers an efficient tool to define temporal fixes, spatial fixes cannot be drawn with the available data sets. However, the NUTS Level 2 regions still provide fruitful insight in terms of spatial fixes.

First of all, the global and local Moran's I statistics confirm that there is a strong spatial autocorrelation between neighbouring regions, especially concentrated around two clusters positioned on the east and north-west of Turkey. In addition, the spatial econometric models also report a strong spatial impact between neighbouring regions in each period in terms of the changes in income distribution. The parameters representing spatial autocorrelation and dependency (ρ for SAR and λ for SEM) are significant, consistent and take high positive values (see tables 4.12 and 4.16). Only one short subperiod shows relatively low spatial impact, which is the period of 1980-88 (table 4.13). This is also to be expected, as in this period Turkey was fully under a military regime and regional policies were strongly dependent on political decisions. Secondly, once again in

parallel with the outcomes of local Moran's I, the results of the KDE demonstrate that there is a spill-over effect between regions, particularly in the advanced metropolitan regions (see figure 4.17). First of all, the cross-sectional distribution of the Istanbul region is always aligned with the neighbouring regions. In addition, there were temporary movements where a metropolitan region interacted at different levels based on the changes in the temporal fixes. For example, the Istanbul region (TR10) was almost always aligned and moved together with the Bursa region (TR41) and the Tekirdag region (TR21). However, the interactions with another neighbour, the Kocaeli region (TR42), changed over time. These two regions were not aligned in the mid-1990s; moreover, the Kocaeli region took a leading role in terms of the income per person in the 1990s until the beginning of the 21st century. Afterwards, each movement of the Kocaeli region is fully aligned with the metropolitan Istanbul region. There are similar examples related to other metropolitan regions, but these can be seen an open debate (e.g. the Izmir, Manisa and Aydin regions were aligned until 2010 based on the KDE results though the cluster analysis does not report any autocorrelation between these regions). However, there is a clear spatial relation between the low-income regions positioned in the east part of Turkey. Seven regions labelled as 'low-low cluster' by local Moran's I statistics have had negative spatial autocorrelations for almost four decades. The underdeveloped situation remains permanent for these regions. Following these results, on the one hand, it is not possible to claim that these changes in their interconnectedness are related to the changes in the mode of capital accumulation. However, it is possible that the relations of centre-periphery regions would change over time based on the capital's seeking of new investment opportunities, particularly in the developed clusters. In the last instance, it clearly needs further analysis preferably enhanced with a more detailed data set.

Another notable insight observed is regarding the evolution of regional disparities in recent years. As explained above, there are several structural changes taking place in the 21st century. First, a new lower-income mass has started to rise at the bottom of the income distribution. The general pattern can tend to a four-pole distribution in the near future. Second, a gap between the low- and the medium-income sections of the income range opened. Third, the 'rich' group is getting smaller and more dispersed. All these changes have presented a highly polarised pattern and they have taken place in the period when Turkey's liberalisation evidently accelerated.

It is, once more, hard to say if all these changes are connected to the changes in the capital accumulation and the associated (dis)appeared regions; however, they can be

possibly linked to the shifts in the regime of accumulation. Nevertheless, existing data sets and statistical units are not adequate to draw the boundaries of the spatio-temporal fixes, but the analyses applied to the NUTS Level 2 regions provide adequate insight to justify the fact that the dissemination of income and the level of development change at the regional level in parallel with the shifts in the regime of accumulation. It would be beneficial to further analyse the Turkey's spatio-temporal fixes in future works.

Changes in the regional pattern: factors and recommendations

During the periods when the Turkish economy suffered stagnation or recession, there was a faster convergence trend among the regions in terms of income distribution. However, regional disparities increased when the economy grew positively. Considering the popular rhetoric of Turkish politics, that is to say, "*we (all Turkish citizens) are in the same boat for economic issues*", it seems that the poorer parts are not in "the same boat" when economic benefits are distributed. For example, there are two periods in which the growth rate was negative; 1989-1994 and 1995-2001. The analyses, the regression-based convergence models and the KDE indicate relatively stronger convergence trends in these two periods (see table 4.14 and figures 4.19 and 4.20). These results are coherently aligned with the results of the inequality indices for the other years in which economic recessions were triggered, namely, 1988, 1994, 2001 and 2007 (table 4.8). In other words, leading regions take advantage of the opportunities generated by economic growth. Expansion begins in the more developed regions, which mostly leads to an increase in regional disparities. Meanwhile, during the crises and recessions, the less developed regions do not suffer as much as the developed regions, which seems to lead to regional convergence. In short, convergence trends, where they exist, are based on the movements of the leading regions towards to the poorer regions in the years of economic recessions. Contrary to the convergence hypothesis, when it has been supposed that the poorer regions would grow faster and converge towards the richer regions, the poorer regions have not improved their positions in terms of income range.

Regional uneven development is clearly linked to the shifts in the regime of accumulation. Each shift in capital accumulation changes the regional pattern, as is to be expected in the political economy approaches; however, this does not automatically help to mitigate uneven distribution. Capital owners aim for profit maximisation, as is expected in the critical literature. Therefore, growth takes place first of all in the most prosperous regions, which leads to increasing inequality over space. At this point, there

are mechanisms that can intervene in the process of capital accumulation and create an incentive to contribute to a more equal development. The most common method is to use governmental expenditure, as the Keynesian approaches recommend. However, this type of incentive is lacking in the Turkish economy, which is in fact related to the following issue.

On the strength of the neoclassical growth theory, variables were added in the beta convergence models since they are supposed to influence regional development. In this way, their impacts on the convergence trends are measured. These variables are the share of the population, savings per person, governmental investments per person, energy consumption per person and export-import ratio. Herein, savings and energy consumption represent the investment capacity as it is difficult to measure this capacity directly. Population is supposed to be related to the size of the labour market and the size of the settlements involved in the regions. Finally, exports and governmental investments always contribute to economic growth; accordingly, we expect to see their impact on regional convergence.

Results of the conditional models are mostly very similar to those of the unconditional convergence models (see tables 4.16 and 4.17). There is no notable impact on the convergence speeds according to the models including the following variables: savings, governmental investments and export-import ratio as parameters of these explanatory variables are quite low and half-time years ranged from 89 to 129 years. In addition, the model with population reports insignificant. In other words, these variables do not have appreciable effect on the distribution of income over space. However, there is a significant impact based on the electricity consumption variable, where the regression model estimates the convergence rate of about 0.05. For this model, which covers a period from 1995 to 2018, one of the lowest half-time is observed with 14 years. Meanwhile, when the same variable, electricity consumption per person, was added to the SEM spatial model, the result was insignificant with a very low impact on the convergence speed (with 133 years half-time). Therefore, this variable is only efficient when the spatial impact is not taken into account. Given the fact that electricity consumption does indeed represent investment capacity, it is possible to say that investments positively affect regional development, but the way in which investments are organised does not consider the spatial issues.

Another surprising result can be linked to the abovementioned point. The models including governmental investment do not prove to be substantially different to

unconditional models in either nonspatial or spatial models and resulted insignificant. In this point, a dummy variable representing economic crises added into the model and achieved at statistically significant result. In this updated model, convergence speed slightly increased and reached to 129 years in the nonspatial model and to 75 years in the spatial model. However, the unconditional spatial model delivered a much higher spatial impact than the conditional model with the governmental investments (the rho parameter is 0.75 and 0.004, respectively). Public investments, by nature, are expected to affect regional convergence in a positive way. However, the impact of these investments in the case under study is almost negligible. In other words, governmental investments are not directly linked to spatial issues and do not significantly contribute to reducing regional disparities. This result, indeed, is aligned with some other studies elaborated same phenomenon (namely; Sagbas (2002), Önder et.al. (2007) and Önder et.al. (2010)) although each work applies different model technicalities and run for the different time periods. Briefly, it can be claimed that the governmental investments are not planned for the purpose of addressing regional uneven development. This should be a serious policy concern for public policy makers. The changes in the production spaces should be analysed and governments should use their resources in a complementary rather than a competitive way.

Lastly, there is a specific issue that deserves to be mentioned. Although there was significant economic growth in the first decade of the 21st century, the unemployment rate also increased considerably. This commonly criticised phenomenon, that is, *growth without employment*, reflected regional uneven development as the fact that employment opportunity is still the most common reason for migration. When a region loses not only income but also job opportunities, the labour force normally starts moving towards more developed areas. This trend also reflects the results of local Moran's I statistics. The developed 'high-high' clusters contain the migration-receiving regions while the less-developed regions classified as 'low-low' are the migration-givers (see table 4.2 and figure 4.12). This is a common issue for less developed countries in the neoliberal era and should therefore be addressed by economic policies, which can also contribute to the equal distribution of resources.

To conclude, it should be underlined that the polarisation of the regional pattern in terms of income distribution should be a serious concern for policy makers. Above all, the awareness regarding uneven development should be raised in every related fields from public opinion to policy-makers; additionally, economic strategies should be aligned with

spatial/regional policies. Tackling the inequality problem is only possible with comprehensive policies that particularly address uneven development and distribution of resources over space. Recently, the issue of uneven development has become much more complicated. Today's world has gone beyond the old clichés. Solving the problem of uneven regional development is not equal to creating markets that are more open. Also, as Martin (2015) highlights, the obsession of spatial agglomeration only strengthens spatial imbalance, where actually integration and synthesis should be emphasised.

Given the new communication opportunities and logistical resources, almost all the world is now accessible, particularly for capital, which makes what an economy offers to the world more important. The main reason for the uneven development, as mentioned by several viewpoints, is unequal trade between technologically advanced and lagging economies. However, this barrier of asymmetrical interaction can be removed through learning from other experiences and investing in high value-added products and services, which is why most lines of thought consider technology and R&I-centred production to be the new keys to economic development. The growth theories, in contrast to the classical approaches, emphasise qualified human resources, research and knowledge activities, and innovative processes. This perspective, in fact, offers new opportunities to economies of all types, including those that are less developed. However, the establishment of an efficient governance system and better organised production and distribution mechanisms have become increasingly critical to the exploitation of these opportunities.

This leads to a common topic for discussion: What should the role of government be in solving uneven (spatial) development in the neoliberal era? First of all, contrary to the common rhetoric, the role of governments in economic policy has not been one of withdrawal. Indeed, there is an intensive disciplinary form of state intervention in every area, from market regulations to the regulation of social life. Furthermore, governments in advanced developed countries today play an active role in the promotion of knowledge-based growth, support innovative activities and make the best use possible of local potential. However, in Turkey, as mentioned previously, even the classical role of government has been neglected. The governmental investments do not even serve to raise the quality of life or distribute resources equitably. Basic policies in these areas can contribute to solving the polarisation issue in the regional structure of Turkey. In addition, public resources can be organised so as to exploit local potential and support knowledge-

based growth. Governmental investments, funds and incentives should be aligned with development strategies that take uneven development into account.

Economic development is mostly a pragmatic issue for people sharing the same time and space. The challenge is for local inhabitants to take full advantage of local opportunities and potential and exploit them for the common public welfare. Developing an economy based on knowledge with the active involvement of the population would offer greater potential for the acceleration of economic development and a decrease in regional disparities.

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APPENDICES

APPENDIX A

CODES AND PROVINCES OF NUTS LEVEL 2 REGIONS OF TURKEY

CODE	PROVINCES INVOLVED
TR10	İstanbul
TR21	Tekirdağ, Edirne, Kırklareli
TR22	Balıkesir, Çanakkale
TR31	İzmir
TR32	Aydın, Denizli, Muğla
TR33	Manisa, Afyon, Kütahya, Uşak
TR41	Bursa, Eskişehir, Bilecik
TR42	Kocaeli, Sakarya, Düzce, Bolu, Yalova
TR51	Ankara
TR52	Konya, Karaman
TR61	Antalya, Isparta, Burdur
TR62	Adana, Mersin
TR63	Hatay, Kahramanmaraş, Osmaniye
TR71	Kırıkkale, Aksaray, Niğde, Nevşehir, Kırşehir
TR72	Kayseri, Sivas, Yozgat
TR81	Zonguldak, Karabük, Bartın
TR82	Kastamonu, Çankırı, Sinop
TR83	Samsun, Tokat, Çorum, Amasya
TR90	Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane
TRA1	Erzurum, Erzincan, Bayburt
TRA2	Ağrı, Kars, Iğdır, Ardahan
TRB1	Malatya, Elazığ, Bingöl, Tunceli
TRB2	Van, Muş, Bitlis, Hakkari
TRC1	Gaziantep, Adıyaman, Kilis
TRC2	Şanlıurfa, Diyarbakır
TRC3	Mardin, Batman, Şırnak, Siirt

APPENDIX B

THE RESULTS OF SDM AND SAC ESTIMATIONS

SAC attempts to combine SAR and SEM models by measuring spatial dependency in both, dependent variable and error term. As it is a common case, SAC should be neglected in the case that SAR and/or SEM is significant (basic results is available in appendix C). SAC can be estimated by following equation:

$$y_{i,t} = \rho W y_t + X_t \beta + \mu_i + v_t$$
$$where\ v_t = \lambda W v_t + \varepsilon_t$$

SDM is a spatial autoregressive model measuring not only spatially lagged dependent variable and explanatory variables, but also spatially lagged explanatory variables. Different from SAC, it does not focus on error term but add another variable to measure outcomes and impact of neighbouring regions, i.e. measuring not only spatial dependency with neighbouring regions but also the same factor within the neighbour regions (basic results is available in appendix C). SDM can be estimated by suing this equation:

$$y_{i,t} = \rho W y_t + X_{it} \beta + W X_t \varphi + \mu_i + v_t$$

Table A.B. Results of the Spatial Durbin Model (SDM) and the Spatial Autocorrelation Model (SAC) (Unconditional, 1980-2018)

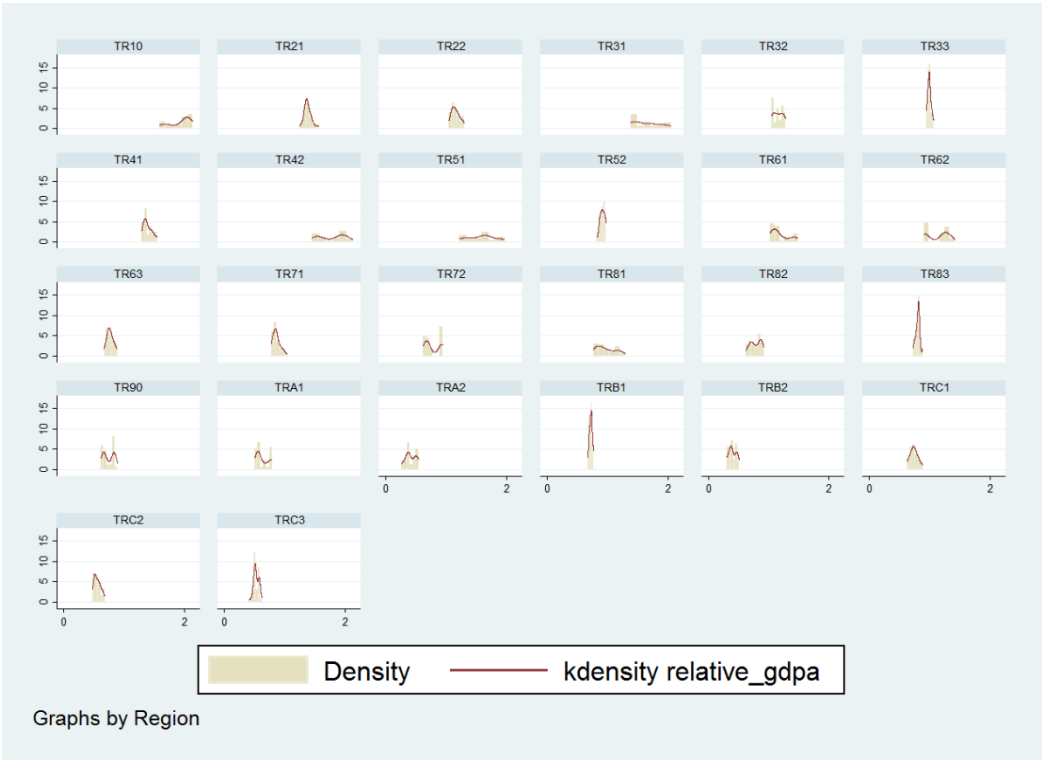
	Non-Spatial	SAC	SDM
R^2 *(overall)* R^2 *(between)*	0,0007 0,2109	0.0681 0.8737	0.1018 0.8291
σ^2	0,08173138 (4,15) **	0.0028548 (18.09) **	0.0039222 (20.19) **
Log-likelihood	-	1146.9249	1107.8060
# obs	832	884	884
β_0	0,1561952 (2,44) **	-	-
β_1	**-0,0567114** (-2,15) *	**-0.1440927** (-5.02) **	**-0.1866866** (-1.71) X
ρ	-	-0.6493321 (-11.60) **	0.7546999 (39.87) **
λ	-	0.9069344 (81.08) **	-
Wx	-	-	0.1006887 (2.60) *
Result & Half-life	Convergence (403,66)	Convergence (151.47)	Insignificant

** Significant at %1 level | * Significant at %5 | X insignificant

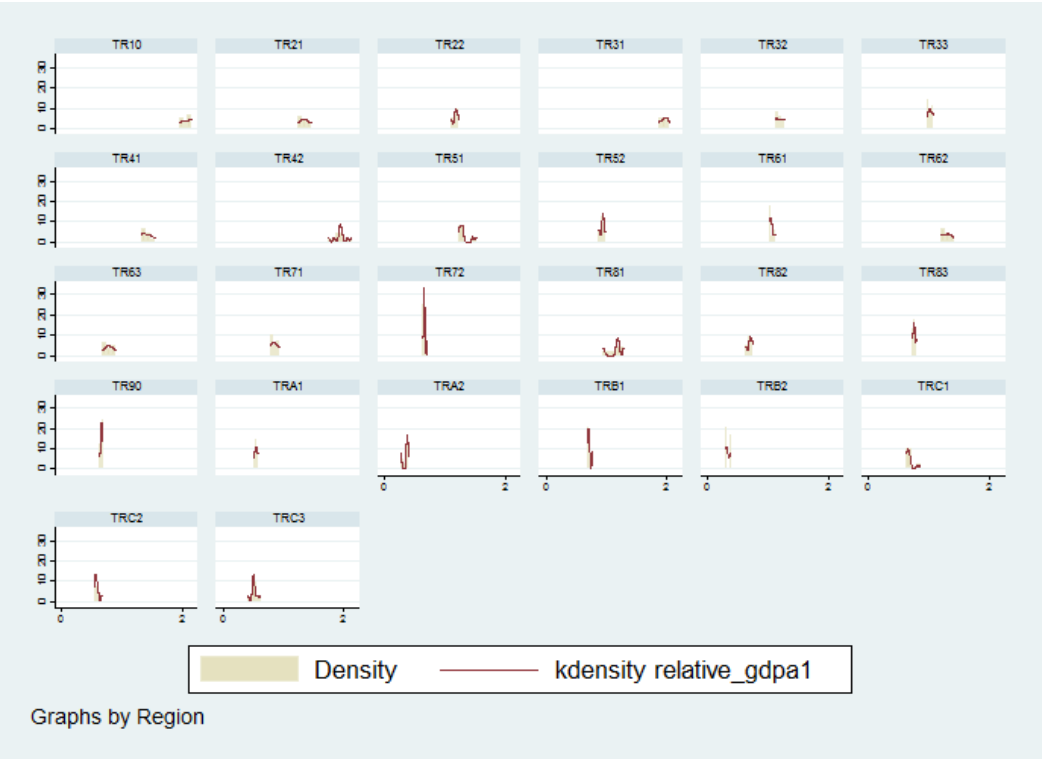
APPENDIX C

THE RESULTS OF KERNEL DENSITY ESTIMATIONS BY REGIONS

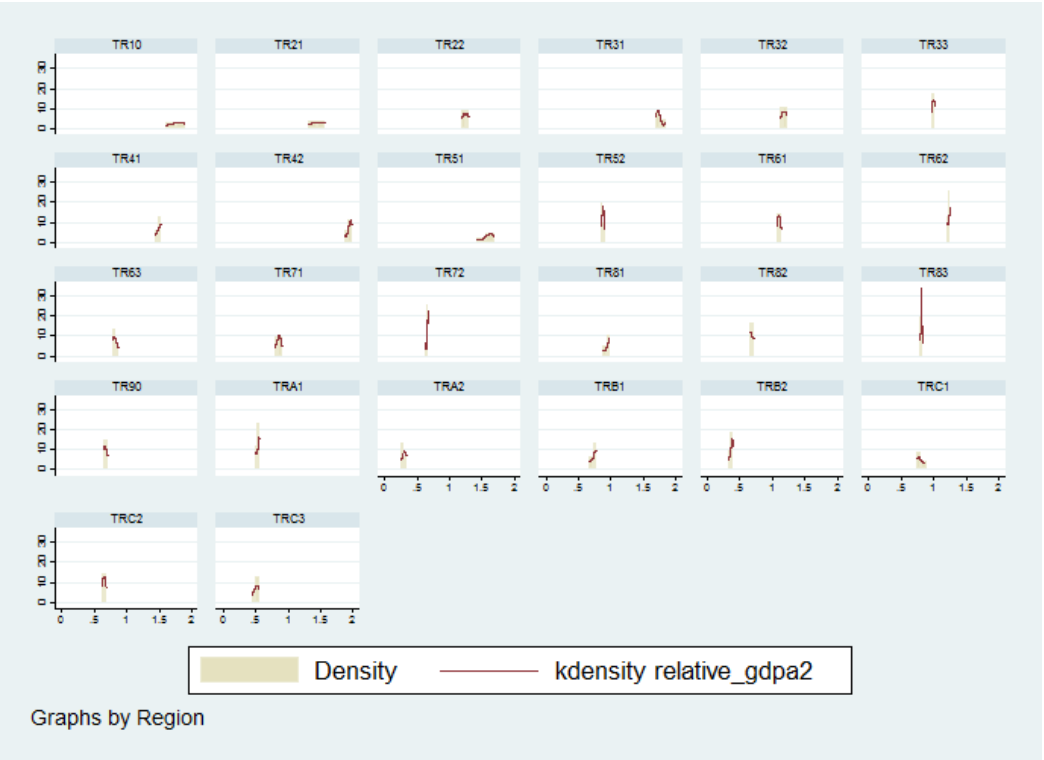
Kernel Density Estimation by Region (1980-2018)



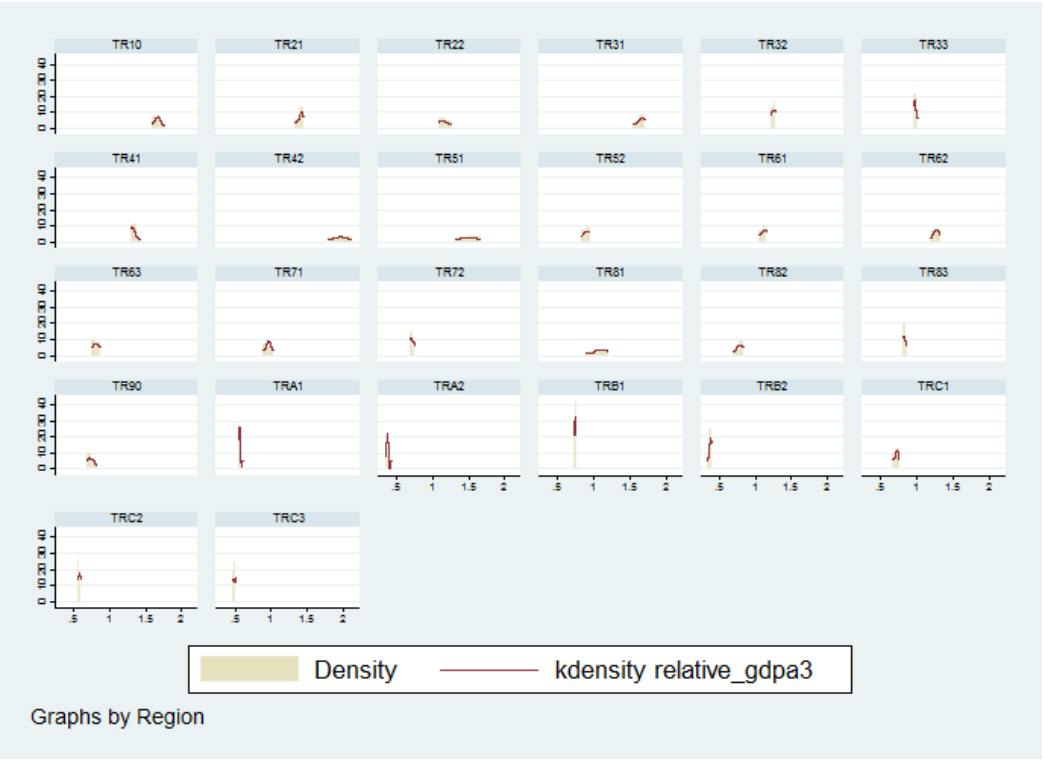
Kernel Density Estimation by Region (1980-1988)



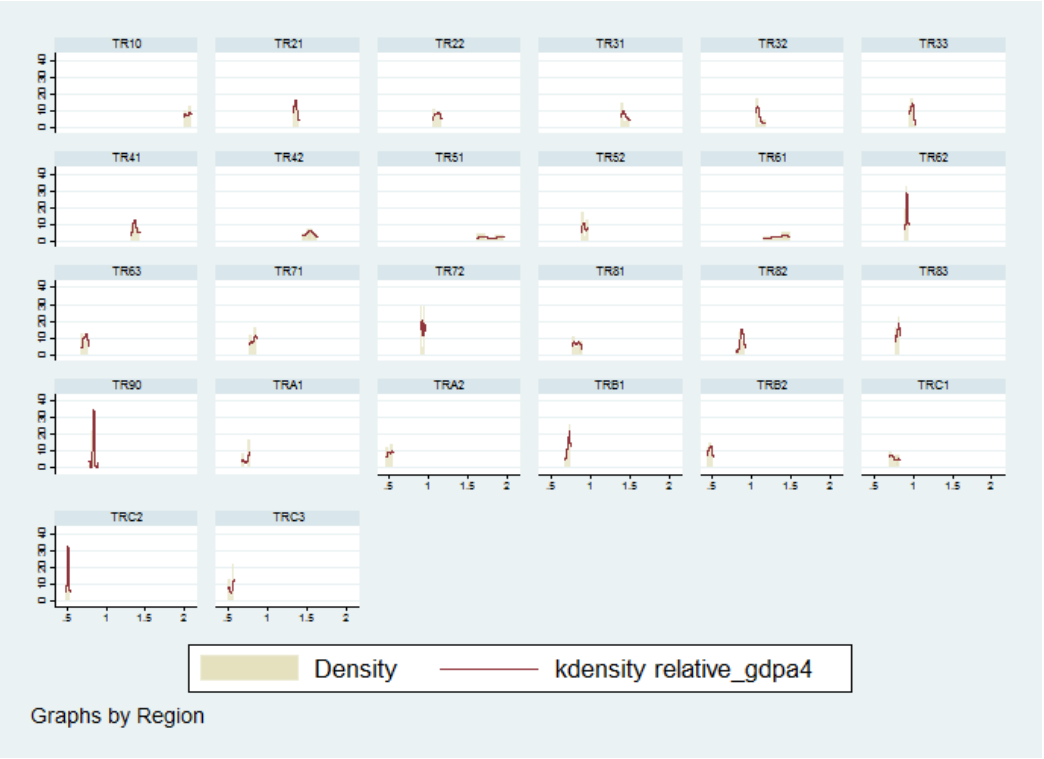
Kernel Density Estimation by Region (1989-1994)



Kernel Density Estimation by Region (1995-2001)



Kernel Density Estimation by Region (2002-2018)



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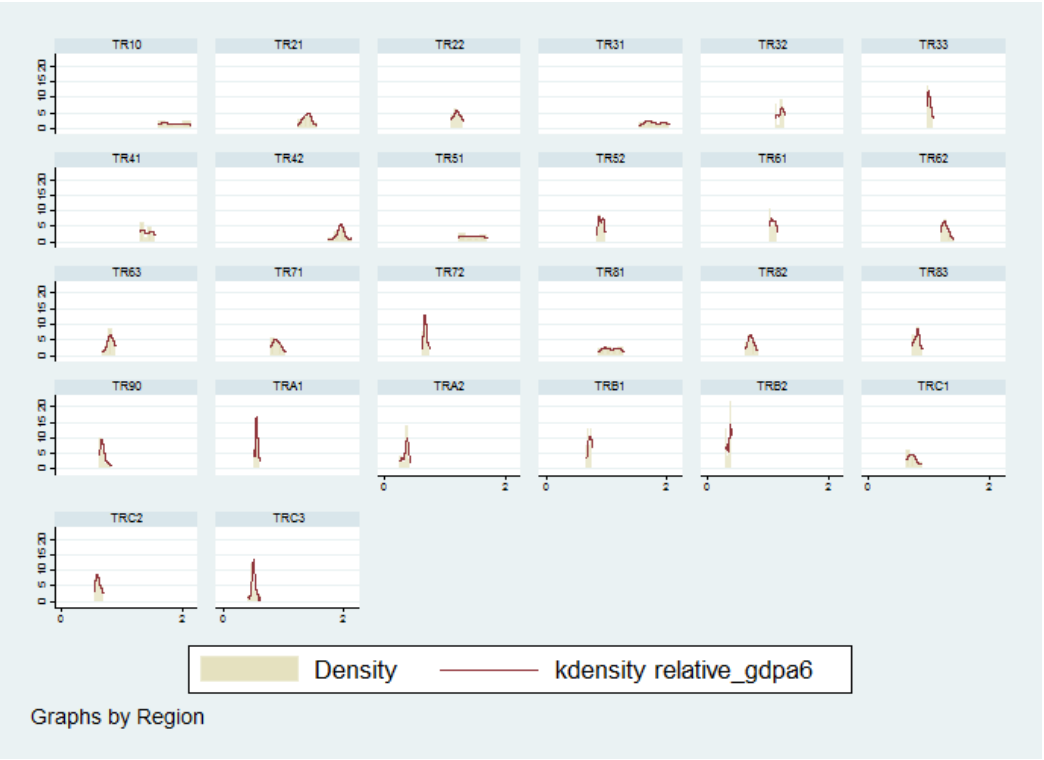
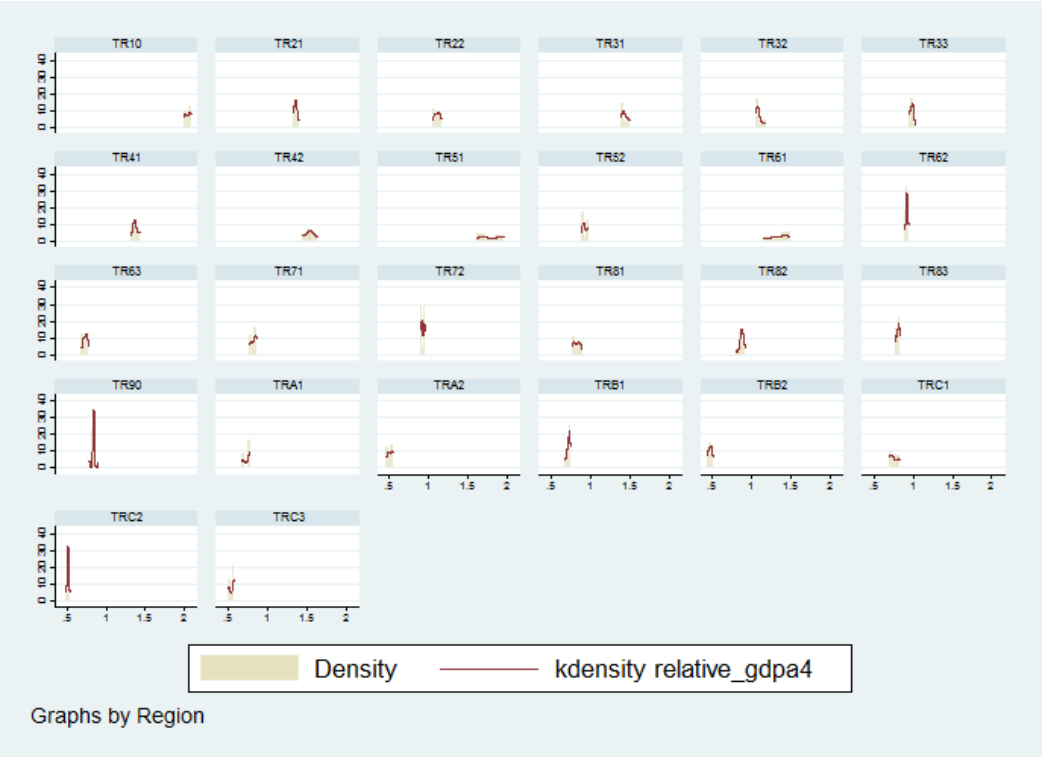


Kernel Density Estimation by Region (2002-2018)



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