DIFFERENT DEFINITIONS OF 'PERIPHERY' AND DIFFERENT PERIPHERIES IN THE EU

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

ESİN ÖZDEMİR

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF SCIENCE
IN
REGIONAL PLANNING

JULY 2005

Approval of the Graduate School of Graduate School of Natural and Applied Sciences.

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Prof. Dr. Canan ÖZGEN
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Science.

_____

Prof. Dr. Ali TÜREL
Head of Department

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science.

_____

Prof. Dr. Ayda ERAYDIN
Supervisor

Examining Committee Members

Prof. Dr. Ali TÜREL (METU, CRP) _____

Prof. Dr. Ayda ERAYDIN (METU, CRP) _____

Assoc.Prof. Dr. Murat GÜVENÇ (METU, CRP)_____

Inst. Sevin OSMAY (METU, CRP)_____

Assoc. Prof. Dr. Cem SOMEL (METU, ECON)_____

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last name : Esin ÖZDEMİR

Signature :

ABSTRACT

DIFFERENT DEFINITIONS OF 'PERIPHERY' AND DIFFERENT PERIPHERIES IN THE EU

Özdemir, Esin

M.S., Department of Regional Planning

Supervisor: Prof. Dr. Ayda Eraydın

July 2005, 198 pages

The definition of the periphery can be made in in different ways, based on the concepts emphisized in different theoretical discussions. Correspondingly, different peripheries appear in Europe from the perspectives of these different definitions. The thesis puts forward five different definitions of the periphery; definition of the periphery based on income and income growth differentials; definition of the periphery by using economic structure, employment and population potentials; definition of the periphery based on welfare conditions; definition of the periphery based on externalities; and definition of the periphery based on endogenous growth dynamics. All these definitions produce different core-periphery maps of Europe. The evidence is based on the use of cluster analysis to identify different groups of regions homogenous in terms of variables that belong to every one of these five definitions. The result confirms that there are different peripheries in Europe. One region that is categorised as core can fall into a peripheral group in a different clasification. This shows that there is not only one type of periphery in Europe, but

that different peripheries appear in case of the usage of different variables. The thesis also argues that there is a need for regional policies that do not the define the periphery as a homogenous area by considering only income differentials, but that identifies different peripheries that have different needs and problems, and devise instruments accordingly.

Keywords: Core, Periphery, Peripheral Regions, European Periphery

ÖZ

‘ÇEVRENİN’ FARKLI TANIMLARI VE AB’NIN FARKLI ÇEVRELERİ

Özdemir, Esin
Yüksek Lisans, Bölge Planlama Bölümü
Tez Yöneticisi: Prof. Dr. Ayda Eraydın

Temmuz 2005, 198 sayfa

Çevrenin tanımı teorik tartışmalarda ortaya çıkan farklı kavramlar üzerinden değişik şekillerde yapılabilir. Buna bağlı olarak, Avrupa’da farklı çevreler ortaya çıkmaktadır. Bu tez çevrenin beş farklı tanımını ortaya koyar. Bunlar çevrenin gelir ve gelir artışındaki farklılaşmalar üzerinden; dışsallıklara dayanılarak; ekonomik yapı, istidham ve nüfus potensiyelleri üzerinden; refah seviyesi üzerinden ve içsel büyüme dinamiklerine dayanılarak yapılan tanımlarıdır. Tüm bu farklı tanımlar Avrupa’nın farklı merkez-çevre haritalarını üretmektedir. Bunun kanıtı herbir tanım için belirlenmiş farklı değişkenler açısından farklı homojen bölgeler belirlemek için kullanılan kümeleme analizine dayanmaktadır. Sonuçlar farklı çevrelerin varlığını doğrulamaktadır. Belirli bir tanıma göre merkez olarak sınıflandırılan bir bölge, farklı bir tanıma göre çevrede çıkabilmektedir. Bu da tek Avrupa’da tek tip çevrenin olmadığını, farklı değişkenler kullanıldığında farklı çevrelerin çıktığını göstermektedir. Buna ek olarak, bu tez çevreyi yalnızca gelir farklılıkları üzerinden homojen bir alan olarak tanımlamayan, farklı gereksinimleri ve sorunları olan farklı

çevreler saptayıp buna göre araçlar geliştiren bir bölgesel politikanın gerekliliğini savunmaktadır.

Anahtar Kelimeler: Merkez, Çevre, Çevre Bölge, Avrupa'nın Çevresi

To My Family

ACKNOWLEDGMENTS

I offer straightforward thanks to my supervisor Prof. Dr. Ayda Eraydın for her guidance and insight throughout the study. I would also thank to Prof. Dr. Ali Türel, Assoc. Prof. Dr. Murat Güvenç, Inst. Sevin Osmay and Assoc. Prof. Dr. Cem Somel, the examining committee members, who gave a kind interest to the study.

I would like to express sincere appreciation and special thanks to A. Mert Burnaz, for his invaluable comments and guidance until the end of the study.

I offer special gratitude to Semin Yılmazcan who gave me a great support for all issues.

Finally, I would like to thank my family for their endless patience, faith and confidence.

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CHAPTER 1

INTRODUCTION

Periphery can be characterised in different ways as an outcome of worldwide economic and social restructurings, and parallel to the explanations of the different theories on these restructurings and their spatial reflections. There has been a traditional agreement on the relative economic backwardness of the periphery against the core due to its relative inaccessibility and high transport costs, but different factors for the underdevelopment of the periphery were emphasized at different times and in different theories. In fact, core-periphery terminalogy is first and mainly used in Marxist and Neo-Marxist Economics, such that, developed countries are characterised as the core, whereas underdeveloped ones are characterised as the periphery. The underdevelopment of the periphery is explained by its sytematical exploitation by the core which results in the value transfer from the former to the latter. However, in our contemporary era, the developed core and the underdeveloped periphery is accepted a *de facto* situation. Therefore, the core-periphery terminology has begun to be used in many different studies and documents including those regarding the EU regional policy, without any reference to their original framework, but considering new theoretical backgrounds. For this reason, this terminalogy is used also in this thesis and, different theories, including those that have not used this terminology, are reviewed with a view to their different considerations regarding the periphery.

The spatial reflections of the variations in the considerations regarding the periphery can be clearly observed in Europe, for it has been subject to several fundamental shifts in the spatial organisation of economy and society, parallel to the changes in the focus of economic activity, which brought it to a state of heterogeneity in terms

of economic prosperity. The first shift occurred in the beginning of the 20th century. A predominantly agrarian economy dependent upon water and road transport, transformed into an economy based on heavy industry thanks to radical advances in technology used in production, transportation and communications. As a result of this transformation, a rich industrial core emerged in Europe at the expense of the peripheral regions. The periphery was not only relatively inaccessible from these developing poles, but also not well endowed with natural resources like them. After 1970s, the second shift was triggered by the radical improvements mainly in communications technology, together with those in transportation. As a result, the dominance of the industrial core of the Europe began to be weakened and the economy became gradually more reliant on service sector. Especially after 1990s, the change in the spatial organisation of the economy became even more apparent as new forms of economic activity have emerged, whose dynamism depends largely on the factors like the skills, educational attainment, and entrepreneurship of the labour force, the diffusion of new ideas and practices in the region, and the formal or informal networks in the society together with the institutional environment that reinforce or hinder this diffusion. As these factors varied, indicators of being a core or a peripheral region and the core-periphery structure of the Europe have changed.

This change and variations in defining core and peripheral regions are explained in different growth and development theories. Until the second half of the 20th century, there had been almost no interest in the periphery in economic theory. Neoclassical Economics, which in fact has been the main line of thought in economics throughout the 20th century, was neither directly nor indirectly engaged in peripheral development and the problems of the periphery. The economy was used to be taken as at equilibrium or moving towards it. After the 1st World War and until the end of 2nd World War, there had not been any considerable change in this lack of interest in the periphery. In this respect, until 1980s, Neoclassical Economics, did not consider the underdevelopment of the periphery as a problem. The free operation of market mechanism was thought to bring together the diminishing returns to capital and labour and end up with the narrowing of the disparities between the core and the periphery. However, in late 1980s, as the arguments of the neoclassical line of

thought, especially convergence argument proved to be inappropriate to what has been happening in the world, Neoclassical Economics and its extension Neoclassical Growth Theory (Solow, 1956; Swan, 1956) began to be altered. The first step was the introduction of the Endogenous Growth Theory (Lucas, 1988; Romer, 1986, 1990, 1994; Krugman, 1995), which is also called the New Growth Theory. Endogenous Growth Theory made two important alterations in Neoclassical Growth Theory. First, it replaced the assumptions of dimishing returns to capital with increasing returns, and the argument of convergence across countries with that of divergence. Second, by taking it as a costly process, this model tried to endogenize the technical change, which was an exogenous variable within the framework of Neoclassical Growth Theory. This actually constitutes a radical change in understanding of the periphery, for knowledge accumulation and knowledge spillovers began to be emphasized as costly processes and as the main factors behind the economic growth.

It was only after 2nd World War, that a distinct body of thought in economic science emerged, which is called Development Economics. It distinguishes itself from the above mentioned mainstream economics, for it is concerned almost only with the problems of the periphery and the issue of underdevelopment, and for it sees the process of development something different then growth. Modernization theory (Rosenstein-Rodan, 1943; Nurkse, 1953; Rostow, 1960; Levy, 1967 et al.) and Structuralism (Singer, 1950; Myrdal, 1957; Hirschman, 1958; Prebisch, 1959; Furtado, 1964 et al.) developed as two contrasting lines of thought in development theory, as the former sees development as equal to westernization and the establishment of western values, while the latter emphasizes the structural features of the periphery. In early 1960s, the Neo-Marxist economics, inspired by Marxism, developed as an attack to all these above mentioned economic theories that originated and developed at the core. Within Neo-Marxist Economics, two main lines of thought gained significance; Dependency Theory (Baran, 1957; Frank, 1967; Amin, 1974; *et al*.) and World-Systems Theory (Wallerstein, 1976). These theories can said to have constituted the view of the periphery, rather then the core, on the issue of economic growth and development. They further emphasize the capitalism

and the process of exploitation as the reasons behind the underdevelopment of the periphery. Another theory that developed as an attack to mainstream economics is Institutional Economics, whose roots date back to the beginning of the century. After 1980s, Institutional Economics was revitalized and redeveloped as New Institutional Economics. The main argument of the Institutional Economics is that economic development is a social and institutional process. In this respect, the role of institutions is emphasized and considered as crucial in the development process of the periphery.

The spatial repercussions of the above mentioned shifts in the economic and social organisation of the focus of the economic activity are mainly explained in Regional Development Theories. In fact, there are different and even contrasting theories regarding to regional economic development, however, their common point is that the concept of space is introduced into the analyses of development, and the unit of study becomes the region, not only the country. Generally, they characterize the periphery as having high transport costs, being distant from markets and material inputs, being sparsely populated, and lacking external economies of scale. These theories can be studied as Location Theory, Export-Base Theory, Growth Pole Theory, and Polarization Theories. In addition to these traditional regional development theories, after 1980s, new generation regional development theories developed, as the region as a unit of analysis became even more important, such that, from then on, it was not only countries, but also regions, which compete and cooperate with each other. This change reflected itself also in the theoretical discussions of Territorial Models of Development, namely the theories of Industrial Districts, Innovative Milieu, New Industrial Spaces, Regional Innovation Systems and their synthesis Learning Regions Model. In these models the territory, country, region or locality, is the unit of analysis and they consider the more knowledge related, intellectual activities as being crucial in the development process of regions. In addition to these activities, they put the diffusion of knowledge and working practices in to the heart of the regional development, and argue that this diffusion can be enhanced by suitable network linkages in the society and a reinforcing institutional environment.

In fact, these theories do not make any explicit definitions of the periphery. However, they provide us with important concepts by which different definitions of the periphery can be made. In this respect, Neoclassical Growth Theory emphasizes only income and income growth differentials. Development Economics, on the other hand, considers income as an indicator as inadequate to explain the process of underdevelopment and introduces concepts like economic structure, employment and population, and welfare. Regional Development Theories, also introduce different concepts in explaining underdevelopment. For example, Location Theory stresses transport costs, while Growth Poles considers agglomeration as the precondition of development and Polarization Theories put urbanization into the heart of regional development. Endogenous Growth Theory, on the other hand, accepts the importance of physical capital, but, together with Territorial Models of Development, further stresses on the role of innovative capacity, human capital and social capital.

To sum up, in the course of time, the situation of the periphery in the European context, and its understanding in theoretical discussions changed extensively. However, in spite of the fundamental changes in the European economic history and the spatial organisation of the economic activity, the periphery of Europe has been identified mainly by income and income growth differentials. Low income per capita regions are identified simply as peripheral, whereas high income per capita regions are considered as the core. However, economic, social and spatial restructurings, together with their reflections in the theoretical discussions show that there is not only one definition of the periphery that is made by using income differentials, but there may be several of them. In fact, after 1980s, some more social and knowledge related activities, and consequently, more intellectual activities gained importance and human capital began to be seen as an important pre-condition of economic growth and development. From then on, high income was not enough for a region to be a core region. At the same time, relative initial low income, in case of relative high levels of human capital, does not prevent a formerly peripheral region from improving its position in the so-called core-periphery relations. However, it is nevertheless true to say that the potential role of such regional characteristics other then income and income growth in defining the periphery or different peripheries is

as yet not perfectly understood, and requires to be more fully integrated into the further analysis of the periphery and rationale and practice of regional policies.

This thesis aims to identify different definitions of the periphery, and to show that defining the periphery mainly with income differentials is not the only one possible way, but there are other possible definitions which can be made via the above mentioned concepts emphasized in different theories, and which will provide us with a comprehensive contemplation of the real strengths and the weakness of the periphery. It attempts, firstly, to understand the different ideas of economic and regional development theories on the periphery. Secondly, it derives more concrete concepts from the implicit considerations of these theories on the periphery and produce different definitions of the periphery by using these different concepts. Third, it identifies the indicators of these concepts and show what kind of different peripheries emerge in Europe when indicators that belong to the different definitions of the periphery are used.

Together with this introduction chapter, the thesis has five chapters. The second chapter is divided into four parts. The first part aims to give an overview of four different economic growth and development theories, namely Neoclassical Economics, Development Economics, Neo-Marxist Economics and Institutional Economics, each of which have quite influential, though different views about the periphery. The second part attempts to give an overview of the traditional regional economic growth and development theories, and the new generation regional development theories, which are Territorial Development Models. The third part attempts to put forward the main concepts that are emphasized in each theory in their implicit explanations of the peripherality. The fourth part attempts to identify different definitions of the periphery considering the concepts emphasized by the different theories. It puts forward five different definitions of the periphery by using these concepts, which are definition of the periphery by using income and income growth differentials, definition of the periphery by using economic structure, employment and population potentials, definition of the periphery based on welfare conditions, definition of the periphery based on externalities, and definition of the periphery based on endogenous growth dynamics. The third chapter aims to give an

overview of the empirical findings on European regions based on these different possible definitions and shows how, and by which concepts some empirical studies identified the European periphery.

In the forth chapter, the different peripheries of Europe are identified according to each definition. In doing this, it is first aimed to determine indicators or proxies for the previously identified concepts that are used to make different definitions of the periphery. Second, it is attempted to make different core-periphery maps of Europe, from perspectives of five different definitions of the periphery in order to show that there is not only one European periphery, but there are different peripheries with different characteristics, and the definition of the periphery made by using income and income growth differentials provide us with the knowledge of only one of these peripheries. Third, it is aimed to evaluate the Turkish regions which constitute a different type of periphery within the wider European context, according to different definitions.

The conclusion evaluates the different core-periphery maps of the Europe which are made according to each of these definitions. Furthermore, it argues about the ever increasing need for regional policies that give special importance to the different needs of the different peripheries. On the other hand, the chapter identifies some problems related with the identification of the periphery mainly with income variables and stresses on the need for the use of a wider range of indicators. In doing this, it aims at raising some further questions for a further study like what kind of new concepts and indicators can be used in defining the European periphery, and what kind of different peripheries can be identified by considering a larger variety of concepts.

CHAPTER 2

PERIPHERY IN THE ECONOMIC GROWTH, DEVELOPMENT AND REGIONAL DEVELOPMENT THEORIES

In general economic theory, there are distinct lines of thought, each of which has its own point of view and explanations concerning the periphery. These economic theories that have different understandings of the periphery can be analyzed in six main groups; Classical Economics, Neoclassical Economics, Keynesian Economics, Development Economics, Neo-Marxist Economics and Institutional Economics. These theories differ not only in how they understand and define the periphery, but also in the extent they are engaged in its problems.

Regional economic development theories, having different origins, have also developed different arguments on the issue of periphery. In these theories, the concept of space is introduced into the analyses of development and the unit of study becomes the region, but not only the country. The regional development theories can be studied as traditional regional development theories and new generation regional development theories, which are called Territorial Models of Development.

2.1. Periphery in the Economic Growth and Development Theories

It is generally accepted that economics as a subject of modern study dates back to the second half of 18th century, namely to the famous work of classical economist Adam Smith, 'Inquiry into the Nature and Causes of the Wealth of Nations'. However, for almost two centuries from its birth on, economics as a social science had not been considerably interested in the problems of the periphery. Classical Economics and Neoclassical Economics until 1980s were almost totally engaged in the economic problems of the core and were quite optimistic about the development of the

periphery. Furthermore, they saw the economic development as equal to economic growth, and did not deal with the economic problems of the periphery. It was only after 2nd World War that economic development, and accordingly the periphery began to be taken up by a distinct field of study, which is Development Economics. Together with these new developments, new heterodoxies, which had totally different understandings of the periphery, emerged and progressed as opposed to mainstream economics. These were Neo-Marxist Economics that is based on Marxist tradition, and New Institutional Economics that is based on Institutional and Evolutionary Economics. Following this, after 1980s, Neoclassical Economics underwent a radical change and left behind its famous optimism, and became quite pessimistic about the catching up of the periphery with the core. In brief, all these different theories have had different and even ever changing explanations for the peripheral development and accordingly, different definitions of the periphery.

Since the end of 19th century, Classical Economics had been the main line of thought in economics. The main assumptions of the Classical Economics were private property, free markets, competition and constant returns to scale. Development was seen as an outcome of the functioning of the two principles; free market mechanism and diminishing returns to capital. It was argued that, in the process of economic development, diminishing returns would finally set in, which means that as more labour and capital were applied to land, then the progress of the agriculture would steadily diminish, until it reached a steady state. In other words, the economy was accepted either always at equilibrium or moving towards it. In this respect, the core used to be seen as having a powerful economy based on private property, free trade, competition and specialization, whereas the periphery was characterized by economic inefficiencies caused by domestic imperfections. As the functioning of the free market was the condition for development, the development of the periphery could also be realized through the good functioning of the free market. Furthermore, as diminishing returns would finally set in, poor countries would catch up with the rich ones, that will bring convergence among the incomes of the countries. In this respect, within Classical Economics, there was no worry, but an optimism about the future of the periphery, and as a result, no interest in its problems.

By the end of 19th century, Neoclassical Economics has been the sovereign line of thought in explaining economic growth and development. Neoclassical Economics, like Classical Economics, do not consider the underdevelopment of the periphery as a problem. The solution is left to the free operation of market mechanism, which will eventually narrow the disparities between the core and the periphery. One important theory that has implications concerning the periphery within the Neoclassical Economics is Neoclassical Growth Theory (Solow, 1956; Swan, 1956), which assumes that the economic growth can be enhanced by increasing productivity, in other words increasing the level of productivity of labour force by changing the type of technology. However, this model assumes that technology is freely given and acquired without any cost, and fails to account for the sources of technology. Such an assumption follows up with a prediction that all economies will end up with a 'steady-state' rate of economic growth, in which the growth rate of capital, the growth rate of labour force and the growth rate of output will be the same, which is a situation corresponding to a constant capital-output ratio. In the process of growth that will end up with a steady-state, there occurs dimishing returns to capital and labour, which means poor countries with low initial levels of capital, will grow faster than the rich ones. As a result of diminishing returns and exogenous technical change, the per capita incomes of the core and the peripheral regions will converge. However, the convergence argument of the Neoclassical Growth Theory proved to be inappropriate to what has been happening in the world, as newly available statistical data and reliable econometric works have showed that striking differences between countries and continents have been increasing (Thirlwall, 1999). As a result, in the late 1980s, Endogenous Growth Theory (Lucas, 1988; Romer, 1986, 1990, 1994; Krugman, 1995), has been developed as a response and criticism to neoclassical growth theory. Originally Endogenous Growth Theory belongs to the neoclassical line of thought; however it relaxes the assumption of diminishing returns to capital and labor, with constant returns or increasing returns and tries to show that there cannot be convergence across countries. Considering it as a costly process, the model also tries to endogenize the technical change, which was an exogenous variable within the framework of Neoclassical Growth Theory. In doing this, knowledge

accumulation and knowledge spillovers are emphasized as the main factors behind economic growth.

After Great Depression, a distinct line of thought, Keynesian Economics, developed as a response and criticism to Neoclassical Economics. Very basically, Keynesian Economics stressed on the need for government intervention in the manipulation of the economy. It argued that, if government is refrained from manipulating the economy, time and nature would not restore prosperity. However, Keynesian economics aimed to develop solutions to the problems of mainly core countries, which have already reached a level of economic prosperity, which, however, cannot be sustained by the prevailing free market mechanism. In this respect, it was not interested in subject of what the periphery was and how its problems could be solved. Thus, it would be quite difficult to derive implications about the periphery from Keynesian Economics. On the other hand, Keynesian Economics contributed quite a lot to the formation of a macro-economic framework such as the Harrod-Domar Models, the Export-Based Model, the Factor-Export-Models and the Neoclassical Multiregional Growth Analysis (Cooke, 1983). However, rather than general economic theories, these theories are mainly considered to be contributions to the literature of Regional Development Theories, which will be mentioned later.

Apart from these lines of thought that try to explain the economic growth and development within the capitalist system, there have been radical approaches to the same issue. The first, or rather the origin of these radical approaches was Marxist Economics, named after Karl Marx who provided the most important social theories, which developed as an opposition to Classical Economics. According to Marxists, the central idea was the conflict between the capitalists, namely the owner of the factors of production, and the workers who constitute the labor for the capitalist production. The so-called exploitation of the workers by the capitalists is considered necessary for the capitalist development. So is the exploitation of the periphery by the core. In other words, only by exploiting the periphery can core maintain the capitalist development and therefore continue its growth. In this respect, the core is seen as the centre of capitalist mode of production, whereas the periphery is characterized by ‘Asian mode of production’, in which pre-capitalist stages, which

the core had experienced, have never existed. The core has internal mechanisms of social change that will help it develop, whereas the periphery does not have such mechanisms and consequently, it is totally dependent on and exploited by the core.

The Neo-Marxist Economics, which developed after 1960s, can be considered as another radical approach to economic growth and development. It was actually inspired by Marxist Economics, but developed as an attack on all these above mentioned economic theories that originated and developed at the core, including Marxist Economics as well. Very basically, Neo-Marxism, which is also called radical political economy, like Marxism, views society in terms of an infrastructure and a superstructure, and sees the class conflict as the "engine" of history. Also, it is anti-capitalist, and characterizes the expansion of the capitalism from core to periphery as destructive. Within Neo-Marxist Economics, two main lines of thought gained significance; Dependency Theory (Baran, 1957; Frank, 1967; Amin, 1974; et al.*)* and World-Systems Theory (Wallerstein, 1976). According to Dependency Theory, dependency, which results in the value transfer from periphery to core, and unequal exchange, is the cause of underdevelopment. Very basically, this theory characterizes the core as homogenous, as having only capitalist mode of production, whereas it characterizes the periphery as heterogeneous; it has both precapitalist and capitalist modes of production. There is coherence between the sectors of the economy of the core, which means its sectors can carry out inter-industry exchanges. These exchanges function as powerful economic forces that diffuse the benefit of progress through the economy. However, such coherence and integrity does not exist in the periphery. Due to its systematical exploitation by the core, it has rather a distorted and a disarticulated economic structure. In brief, due to its dependency on the core, dependency theory considers the economic development as impossible for the periphery. In doing this, however, it undervalues the internal factors in the periphery and considers them of minor importance and irresponsible of its underdevelopment. On the other hand, World-Systems Theory attempts to take a more global perspective within the framework of Neo-Marxism. Within the World-Systems theory, the world becomes the unit of analysis and the development occurs in the world system. In this theory, a tri-modal structure is proposed; core, semi-

periphery and periphery. However, these are not only proposed as cores, semi-peripheries and peripheries as distinct geographies in the world, but also as different development processes (Arrighi, 1985). There is a core development and a peripheral development process. In between is the process of semi-peripheral development. In other words, being a peripheral region or a country is not understood as a static condition, but as an upgradeable position in the world-system. In this respect, the core development corresponds to high rates of capital accumulation and great advancement in technology, whereas the peripheral development is characterized as lacking capital and technology, having huge trade disadvantages, relying on natural resources and producing cheap exports to be sold at the core. On the other hand, semi-periphery is characterized as being in a transition stage, either from periphery to core, or vice versa. In this respect, the semi-periphery is considered either as regressed from core status through under-going a process of deindustrialization or experiencing a rapid industrialization towards core status.

After 2nd World War, another set of theories, which is called Development Economics, emerged and developed until 1970s. It distinguishes itself from the above mentioned mainstream economics, for it is concerned almost only with the problems of the periphery and the issue of underdevelopment. These are two theories that are developed within the framework of development economics; Modernization Theory (Rosenstein-Rodan, 1943; Nurkse, 1953; Rostow, 1960; Levy, 1967, et al.) and Structuralism (Singer, 1950; Myrdal, 1957; Hirschman, 1958; Prebisch, 1959; Furtado, 1964; et al.). Actually, the evolution of Development Economics has revolved around Modernization Theories, which sees development as equal to westernization and the establishment of western values, and Structuralism, which emphasizes the structural features of the periphery, while analyzing the issue of underdevelopment. According to Modernization Theory, development is a unidirectional process from traditional to modern. In this process, production and efficiency is increased and this increase is measured by per capita income. The modern western civilizations are considered to constitute the core. They have succeeded both economic and democratic prosperity. On the other hand, the periphery is characterized as being traditional. Internal factors, cultural values and

institutions are considered to be responsible for the underdevelopment of the periphery. It is further argued that, as long as the periphery follows the development process of the core, which has been from traditional to the modern, it was possible for the periphery to develop and catch up with the core. That means Modernization Theory is quite optimistic about the future of the periphery. On the other hand, according to Structuralism, which developed from 1950s, a little later then the Modernization Theory, development is a social phenomenon and cannot be reduced to output growth. In this respect, the core is characterized as having had a suitable social and institutional environment for economic development and institutions geared towards economic growth. For this reason, it can develop its own technology, export its technological products and therefore have good export prices. On the other hand, the main feature of the periphery according to structuralism is its dualism between small modern sector and large subsistence sector. As it does not have suitable institutions and a social environment for economic development, it either uses inappropriate technology, or it cannot develop its own new technology and imports it from the core. As a result, it can only export raw materials which have relative low prices. However, both Modernization Theory and Structuratism try to explain why nations have very different income per capita, economic structure and different standards of living.

The next theory that developed as heterodoxy and an opposition to mainstream economics is Institutional Economics and its post-1980 version New Institutional Economics. According to Institutional Economics, development is an institutionalized and evolutionary process. Institutions are effective either positively or negatively in the process of development. In this respect, the core has an institutional endowment that supports development, and has an identity, whereas in the periphery, present institutions are obstructive for development and therefore, it cannot adapt to changing conditions and create its identity. The new institutionalists, on the other hand, accept what the institutionalists have sad so far, however, they argue that there is a need for a compromise between Neoclassical and Institutional Economics, so that the latter can be more productive.

As it is mentioned before, all these economic theories that developed throughout the 20th century have dealt with the problem of economic development; however they differ in the extent they take up the issue of peripheral development (see Table 2.1 and Figure 2.1). For this reason, it would be logical to examine those in detail, which have explanations of the periphery and implications thereabout. The theories that have such features and provide key ideas about the periphery are Neoclassical Growth Theory, Endogenous Growth Theory, Development Economics, Neo-Marxist Economics and Institutional Economics. Accordingly, in this chapter, these theories and how they define the periphery are reviewed in more detail.

Table 2.1 Economic Development, the Core and the Periphery in Economic Theories (Source: Author's Own Elaboration)

			Development	**Core**	**Periphery**
Mainstream Economics	Neoclassical Thought	Neoclassical Growth Theory	- is equal to output growth -outcome of operation of free market & decreasing returns	-based on free trade, specialization -capable of transforming itself	-domestic imperfections, economic inefficiencies, social rigidities -able to develop in free market conditions; convergence
		Endogenous Growth Theory	-brings increasing returns and divergence - occurs in monopolistic competition -achieved through endogenized technological process - realized with human capital and stock of knowledge	- agglomeration economies, knowledge spill-overs occur -high levels of human capital and knowledge stock -high levels of physical capital -advanced technology, rapid technological change	- inefficient and insufficient human capital, no or too small stock of knowledge - insufficient physical capital - technological change is slow
Development Economics	Modernization Theory		-increase in production and efficiency , measured by per capita income -from traditional to modern; unidirectional	-modern (Western civilizations) -social-structural differentiation, clear definition of tasks of institutions -economic prosperity -democratic stability	-traditional -internal factors, cultural values and institutions are responsible of underdevelopment -lack of productive investments
	Structuralism		- ≠ output growth -cannot be achieved through free market system -a social phenomenon; social aspects are involved	-high manufacturing production and low population growth -able to develop tech. -productivity improvements, good export prices -institutions geared towards growth	-dualism: small modern sector - large subsistence sector -high population growth -not able to develop its own technology; use of inappropriate technology -low export prices -income elasticity of demand for exports< 1

Table 2.1 (continued)

<table>
<tr><th colspan="2"></th><th>Development</th><th colspan="2">Core</th><th>Periphery</th></tr>
<tr><td rowspan="3"><u>Radical Approaches</u>
<u>Neo-Marxism</u></td><td rowspan="2"><u>Dependeny Schoool</u></td><td rowspan="2">-discrete historical process
-impossiple for the periphery in the capitalist system (solution: socialism)
-under-development: the result of the value transfer from periphery to core and unequal exchange</td><td colspan="2" rowspan="2">-homogenous; only capitalist mode of production
-powerful economic forces that diffuse the benefit of progress through the economy
-coherence; sectors carry out inter-industrial exchanges
-self-contained development
-exporting manufactures</td><td>- heterogeneous; precapitalist + capitalist modes of production
-exporting primary goods, importing manufactures
-systematically exploited by the core and prevented from developing
-distorted, disarticulated economic structure</td></tr>
<tr><td rowspan="2"><u>World –System Theory</u></td><td rowspan="2">- world is the unit of analysis
-emerges in the world-system</td><td>Core</td><td>Semi-Periphery</td><td>Peripheral development</td></tr>
<tr><td>-high rates of capital accumu-lation
-great advance-ment in technology
-consumer oriented</td><td>- less powerful than core, more powerful than periphery
-regressed from core status through deindustriali-zation or experiencing a rapid industrializa-tion towards core status</td><td>-lacks capital, technology
-huge trade disadvantage
-produces goods exported at low prices and sells at the core
-relies on natural resources</td></tr>
<tr><td colspan="2"><u>Institutional Economics</u></td><td>-an institutionalized and evolutionary process
-institutions are effective either positively or negatively</td><td colspan="2">-institutional endowment supports development; institutional thickness
-innovative
-has an identity</td><td>- present institutions are obstructive for development
-cannot adapt to changing conditions</td></tr>
</table>

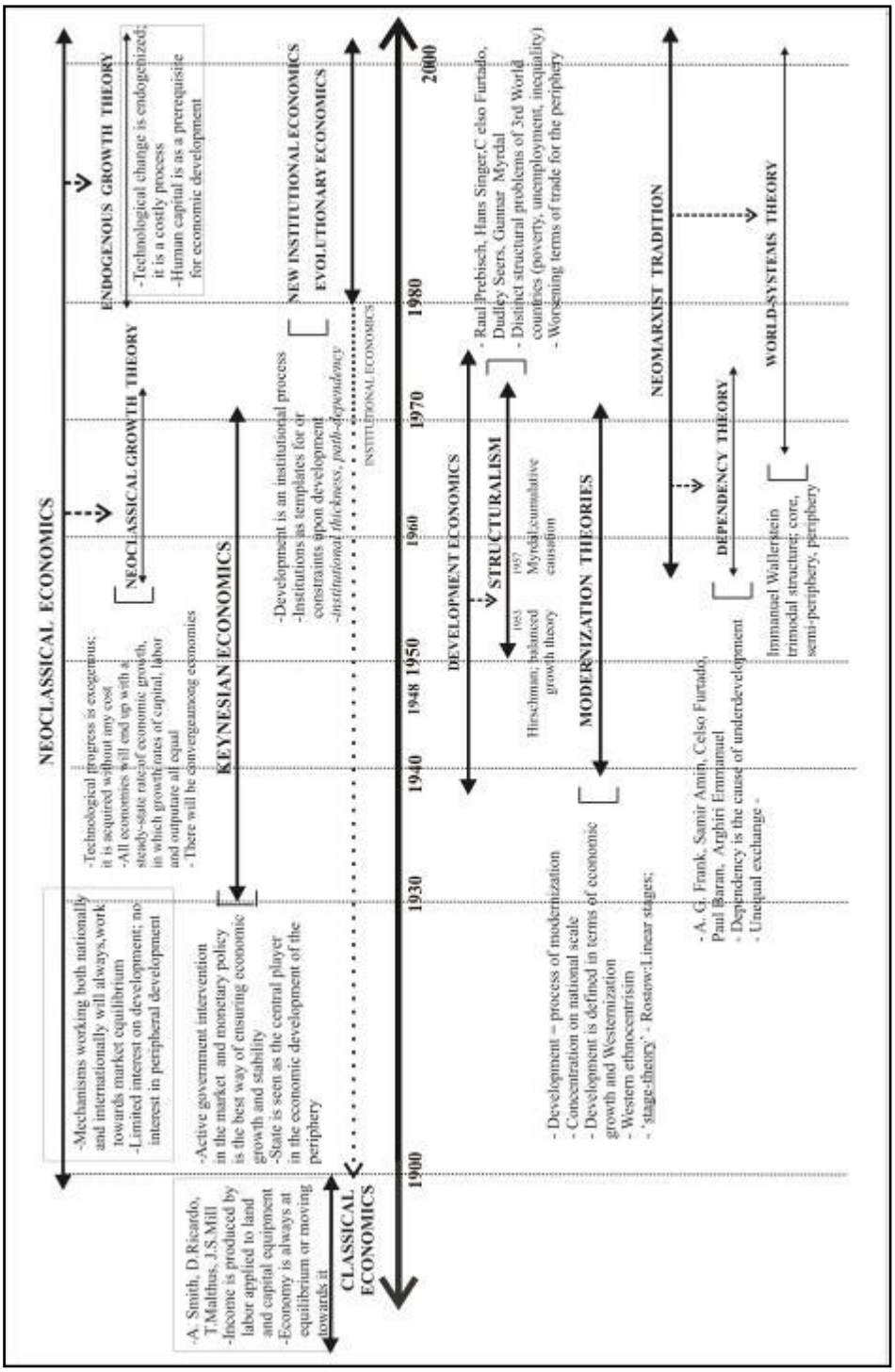


Figure 2.1 Understanding of Economic Development, the Core and the Periphery by Different Economic Theories (Source: Author's Own Elaboration)

2.1.1 Neoclassical Growth Theory

There have been two periods of intense work on growth theory; the first is in the late 1950s and 1960s, the second in the late 1980s and 1990s (Dornbusch and Fischer, 1994). The studies made on the fist period can be titled as *neoclassical growth theory* (Solow, 1956*).* Actually, Neoclassical Growth Theory is a term that has been used in order to sum up various authors' contributions about the growth process in the framework of Neoclassical Economics. Robert Solow is the main contributor among these authors. As a result, Neoclassical Growth Theory is also called Solow Model. Very basically, this model is designed to show that all economies will end up with a steady-state at which the growth rate of capital, the growth rate of labor force and the growth rate of output will be the same. As all economies will reach this steady-state rate of growth, there will be convergence across their incomes.

Actually, Solow constructed his model accepting Harrod-Domar assumptions except for that of fixed proportions (Solow, 1956) and his efforts were to develop a model of long-run economic growth, in which the output-capital ratio is capable of varying, instead of being in fixed proportions. Here it is intended to give a summary of the model and its main propositions. Solow's main contribution was the concept of economic equilibrium over time as summarized by his differential equation, which describes the evolution of an economy's capital stock (Becker and Burmeister, 1991). This differential equation is as below:

$$\acute{K}(t) = s\ F\ [K(t), L(t)]\ , \qquad (1)$$

where $\acute{K}$ is the stock of a single type of capital good, L is the labour input, s is the savings rate, t is time, and F[.] is the aggregate production function. This production function is assumed to have neoclassical properties, and completely determines the evolution of an economy over time. Solow described this as such: 'as a part of macroeconomics, growth theory functions as the study of the undisturbed evolution of potential (or normal capacity) output' (Solow, 1999). To put more precisely, it is the study of the evolution of output, in which the goods and labor markets are always at or moving towards equilibrium, and therefore which is undisturbed. In other words, what the basic Neoclassical Growth Model is designed to show is that an

economy will tend to towards a long-run equilibrium capital-output ratio (v) at which output or income per head (q) is also in equilibrium, so that output, capital and labour all grow at the same rate. This prediction can be formulized as below:

$$\Delta K/K = \Delta L/L = \Delta Y/Y = n \,, \qquad (2)$$

where K denotes capital, L denotes labor and Y denotes output. By the time this condition is satisfied, the economy is at *steady-state*.. This steady-state can be showed graphically as in Figure 2.2:

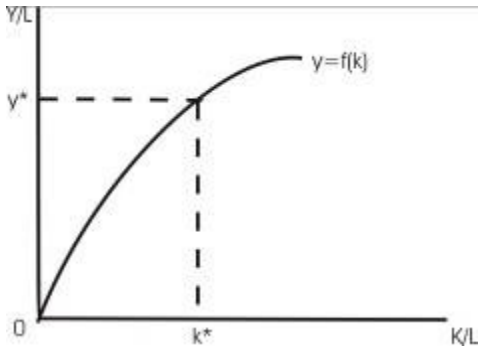


Figure 2.2 Output per Head and the Capital-Output Ratio

In order to understand the main propositions of the Neoclassical Growth Theory and how the steady-state is described the link between saving and growth in capital should be examined. Neoclassical Growth Theory assumes that all saving is invested. To obtain the increase in the capital stock, depreciation should be deducted.

$$\Delta K = \text{saving} - \text{depreciation} \qquad (3)$$

It is further assumed that saving is a constant fraction, s, of income Y.

$$S = I = sY \,, \qquad (4)$$

and that depreciation is at a constant rate of d of the capital stock. By substituting these last two assumptions in a single equation, the following equation is arrived at;

$$\Delta K = sY - dK \qquad (5)$$

using equation (2), that $\Delta K/K = n$, the following result that describes the steady-state, can be reached:

$$sY = (n+d)K \qquad (6)$$

This equation shows that in the steady-state, saving (sY) is just sufficient to provide for enough investment to offset depreciation (dK) and to equip new members of the labor force with capital nK. (Dornbusch and Fischer, 1994). Figure 2.3 summarizes this situation. The economy evolves into a steady-state from an initial capital stock, namely from capital-labour ratio, k, to k*. The sy function shows the part of the income that is saved, while the (d+n)k line shows the amount of investment required just to maintain the capital-labor ratio constant, which is assumed to be reached at steady-state by Neoclassical Growth Theory. When saving, sy, exceeds (d+n)k, then k is increasing, and the economy is moving to the right. The adjustment process stands without changing at point C. Here the capital-output ratio, k* is reached, which corresponds to the steady-state. At this steady-state, the equation (2) is satisfied, namely, aggregate income is growing at the same rate as population.

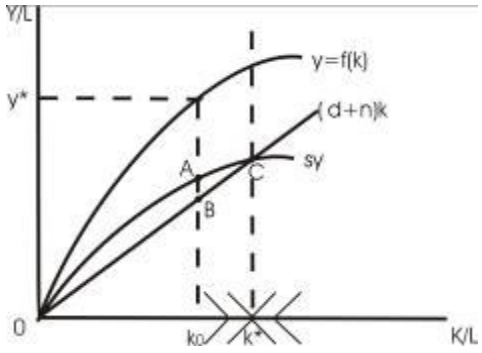


Figure 2.3 Saving, Investment and Capital Accumulation

Figure 2.4, on the other hand, explains the results of an increase in the saving rate, which, in the short run, increases the growth rate of output. In the figure, the economy is initially at steady-state, point C. The saving schedule shifts upward, from sy to s′y. Saving now exceeds the investment requirement. In other words, more

is saved than is required to maintain K/L constant, so the K/L ratio rises until point C′. At C′, the higher amount of saving is just enough to maintain the higher stock of capital, and both K/L and K/Y have risen. However, growth rate increases only in the transition from C to C′. In other words, although it increases the per capita income level at steady-sate, an increase in the saving rate does not affect the steady-state growth rate of an economy. Regardless of an increase in the saving rate, the growth rate at steady-state is equal to the growth rate of the population, n.

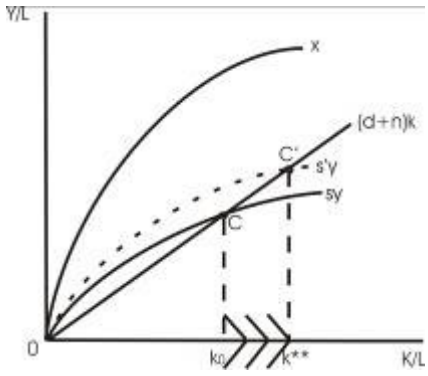


Figure 2.4 An increase in the saving rate

In summary, Neoclassical Growth Theory has three basic propositions:

First, as observed in equation (2) and Figure 2.1, the growth rate of output in steady state is exogenous. It is therefore independent of the saving rate, s. However, although an increase in the saving rate does not affect the steady-sate growth rate, by increasing the capital-output ratio, it increases the steady-state level of income. If productivity growth is allowed, then at steady-state, the growth of output is determined by the rate of growth of the labour force in efficiency units, that is, the growth rate of labour force *n* plus the growth rate of productivity *m* (Thirlwall, 1999). So, according to Neoclassical Growth Theory, the steady-state rate of growth of per capita income is determined only by the rate of technical progress. To put in a different way, technical progress is maintained by increase in rate of labour

productivity, and this technical progress is exogenous and acquired without any cost. So, Neoclassical Growth Theory boils down to saying that long run economic growth comes from technological progress.

Second proposition is the critical one for us. According to Neoclassical Growth Theory, 'an economy that applies increasing capital to a fixed stock of labour will eventually suffer from diminishing marginal product of capital, and its output will increase less than proportionately' (Farmer, 2002, p. 352). Here, diminishing marginal product of capital implies that an economy with a higher capital-output ratio will find it easier to grow through investment than the economy with a lower capital-output ratio (Miles and Scott, 2005, p. 64). In addition to that, 'investment is a fixed fraction of output, but in each successive period there will be less increase in output then in the previous period' (Farmer, 2002, p. 352). As a result of diminishing marginal product of capital, growth does not go on forever and it reaches a steady-state rate (See figure 2.2).

The third proposition is the extension of the second one and it demonstrates how the Neoclassical Growth Theory looks into the concept of periphery. According to Neoclassical Growth Theory, if two countries have the same rate of population growth, the same saving rate, and have the access to the same production function, and access to same technology, they will eventually reach the same level of income. So, poor countries are poor because they have less capital, but if they save at the same rate as rich countries, as they have access to the same technology, they will eventually catch up. To be more precise, Neoclassical Growth Theory predicts convergence. Actually, this point is related to diminishing marginal product of capital. As we have said before, what Solow introduced with his model was a capital-output ratio that is capable of varying. If a larger amount of labour is absorbed into the employment of an economy with a given stock of capital, the output-capital ratio of this economy will be larger too. This means, output per unit of capital (or productivity of capital), will be greater in poor countries that have a low ratio of capital to labour, than in rich ones that have a high level of capital to labor. So, poor countries will use their capital more productively and grow faster then rich countries, provided that the ratio of saving rate to income is identical across countries. As this

continues, there will be convergence. To put it shortly, Neoclassical Growth Theory precits convergence which corresponds to the catch-up faster growing initially poor regions with the rich ones (Fingleton, 2003) and the main element behind this result is diminishing returns to reproducible capital (Barro, 1991).

Consequently, as an extension of mainstream Neoclassical Economics, Neoclassical Growth Theory is not engaged in the problems of the periphery. It deals mainly with the growth dynamics of the core. In other words, there is a lack of concern on periphery in neoclassical tradition. However, although the main concern was the core, Neoclassical Growth Theory accepts the reality of underdevelopment by foreseeing a convergence among the developed and underdeveloped countries, and whether intentionally or not, it attributed a meaning to the periphery. For this reason, considering this growth theory and analyzing what it says on the issue of periphery is helpful to understand what kind of a change in the perception of the periphery has been occurring, and what the theory has lacked so far.

As already pointed out, according to Neoclassical Growth Theory, labour productivity is critical for growth. It determines the technological progress. Solow stresses labour-augmenting technological progress and defines the particular form that the technological progress must take as labour-augmenting. (Solow, 1970). In addition to that, technology, or rather technological progress is assumed to be exogenous, which means, it is acquired without any cost. In other words, it is assumed to be acquired without any intention and special effort. Actually this assumption, being implausible, seems to be very limiting. By making such an assumption, Neoclassical Growth Theory is not concerned with the very fact that, in order to realize the technological progress, periphery does not have the same opportunity like core. To put more precisely, it does not consider the main backwardness of the periphery against the core. As put forward later by Endogenous Growth Theory literature, endogenously acquired technological progress, in which knowledge is the main input and also the main output, makes the core even more advantageous against the periphery. So, Neoclassical Growth Theory is too optimistic by not taking the periphery as it is. In other words, when technology is assumed to be exogenous, then it is exogenous both for the core and the periphery.

And this means, Neoclassical Growth Theory does not consider the obstacles the periphery faces in technological progress.

Furthermore, and very importantly, it argues that poor countries are poor because they have less capital. This implies that it tries to define the periphery only with income variables, and this is on no account sufficient for a full understanding of the peripheral dynamics. In addition to that, if we look into the matter from the other side of the coin and accept the endogenous acquisition of the technology, growth dynamics can, at least in theory, orientate into a totally new and positive direction, admittedly not in all, but at least in some part of the vast periphery. So, knowledge as an input can change not only the dynamics of the core, but of the periphery as well. However, by considering only income variables, and neglecting the other knowledge related ones, Neoclassical Growth Theory is not concered with the strengths and weaknesses of the periphery.

2.1.2 Neoclassical Approaches-Endogenous Growth Theory

Endogenous Growth Theory (Lucas, 1988; Romer, 1986, 1990, 1994; Krugman, 1995) which is also called the New Growth Theory originally belongs to neoclassical line of thought and developed in the 1980s as a response and criticism to the Neoclassical Growth Theory. Endogenous Growth Theory, contrary to Neoclassical Growth Theory, is concerned with divergence among the incomes of regions or countries, and for this reason it is pessimistic about the future of the periphery. However, like Neoclassical Growth Theory, it studies on the growth processes that take place at the core, rather than trying to find solutions to the problems that periphery faces in its growth process.

In Neoclassical Growth Theory, technology, which is the main force behind economic growth, or rather the growth itself is exogenous. To put in a different way, Neoclassical Growth Theory is able to describe how an economy grows, but it cannot analyze the forces and reasons behind this growth. Endogenous Growth Theory aims to overcome this shortcoming by making the technology an endogenous variable. In other words, it seeks to endogenize technical change by folding its production more fully into the neoclassical positive heuristic (Langlois, 2001). Within the framework

of Endogenous Growth Theory, several models have been developed by various authors, and they all constitute the endogenous growth models. In all of these models, the main importance is usually given to the "production" of new technologies and human capital.

These studies seem to have been prompted by a number of factors (Thirlwall, 1999). First, there has been an increased concern with the economic performance of the poorer regions of the world, and particularly the striking differences between countries and continents. Second, the availability of standardized data enabling reliable econometric work has increased. Third, there has been pioneering studies that could not find any convergence of per capita incomes in the world economy, contrary to the prediction of Neoclassical Growth Theory based on the assumption of diminishing returns to capital, which, given identical preferences and technology across countries, should lead to faster growth in poor countries than in rich ones.

Very basically, the Endogenous Growth Theory relaxes the assumption of diminishing returns to capital, with constant returns or increasing returns and demonstrates that there cannot be convergence across countries. In addition to that, it tries to endogenize the technical change, which was an exogenous variable within the framework of Neoclassical Growth Theory. This point, the technical change taken as exogenous, is seen as a deficiency of the Neoclassical Growth Theory and makes it unable to answer the question why economies grow or cannot grow.

In trying to endogenize the technical change, Endogenous Growth Theory perceives it as a process induced by previous economic conditions. The important pioneers of this theory are Robert Lucas (1988) and Paul Romer (1986). However, studies made in order to endogenize the technical change traces back to Kaldor (1962) and Arrow (1962).

The important feature of Endogenous Growth Theory is that it considers two types of capital; one is physical capital and the other is human capital and the accumulation of human capital is responsible for growth in GDP per person. Human capital can be accumulated in the same way as physical capital is accumulated. For both accumulations, there is need for devoting resources to be invested. Accumulation of

physical capital requires investments such as building factories or investing for new equipment. On the other hand, accumulation of human capital requires knowledge acquisition. And, knowledge acquisition comes through both active learning process and the process of knowledge production. Here, this latter process refers to the concept of *learning by doing*. As Arrow (1962) suggests, the level of the learning coefficient is a function of cumulative investment. Arrow gives crucial importance to the absolute level of knowledge that is already accumulated.

As already said, Endogenous Growth Theory aims to endogenize the technical change, in other words the growth itself. The main idea is that while firms face constant returns, the industry or economy as a whole takes increasing returns to account. As the Cobb-Douglas production function, $Y = AK^aL^{1-a}$ is taken, there is constant returns to scale for all inputs together (since a + (1-a) = 1). Therefore, as noted in Neoclassical Growth Theory, output per capital and consumption per capita does not grow, if the exogenous factor, A, does not increase. To endogenize A, the Cobb-Douglas production function is established for each individual firm:

$$Y_i = A_i K_i^a L_i^{1-a} \qquad (1)$$

where, one can note, the output of an individual firm is related with capital, labor as well as the "augmentation" of labor by A_i. Arrow (1962) assumed that A_i, the technical augmentation factor, might thus written look specific to the firm, but it is in fact related to total "knowledge" in the economy. This knowledge and experience, Arrow argued, is common to all firms, as both a private and a public good. Arrow argued that the knowledge accumulation arises from past cumulative investment of *all* firms. Thus, he assumed that the technical augmentation factor is related to economy-wide aggregate capital in a process of "learning-by-doing". In other words, the experience of the particular firm is related to the stock of total capital in the economy, G, by the function:

$$A_i = G^z \qquad (2)$$

thus, as the physical capital stock G accumulates, knowledge used by a particular firm also accumulates by a proportion z such that;

$$Y_i = G^z K_i^a L_i^{1-a} \qquad (3)$$

In this equation, only G does not have a subscript i, for it is a productive force *external* to the firms and assumed a free public good. This force is free and any firm employing it will not implicate on another firm's consumption: it is freely-available knowledge. Thus, constant returns to scale at the firm level is maintained, but in the aggregate, however, G = K, since it is only the accumulated stock of capital for the economy. Therefore, the "economy-wide" aggregate production function is:

$$Y = K^{a+z}L^{1-a} \qquad (4)$$

Arrow (1962) assumed that a + z <1. Therefore, increasing only capital (or only labor) does not lead to increasing returns. We can obtain increasing returns to scale as a + z + (1-a)="z"> 1, but capital and labor must both expand. However, by adding this restriction, Arrow's original model exhibits non-increasing returns to scale in aggregate if the rate of growth in an economy is steady. Paul Romer (1986) took the Arrow idea of disembodied knowledge, and concluded that there indeed could be constant returns, but he claims that the rate of growth of K alone may yield increasing returns, i.e. he assumed a + z > 1 was possible. This can be said to constitute the first departure from diminishing returns. According to Romer, the rate of investment and the rate of return on capital may increase rather then decrease with increases in the capital stock. Furthermore, 'the level of per capita output in different countries need not converge; growth may be persistently slower in less developed countries and may fail to take place at all' (Romer, 1986). The increasing rather then decreasing marginal productivity of the intangible capital good knowledge, is the key feature in the reversal of the standard results about growth. 'Production of the consumption good is assumed to be globally convex, not concave, as a function of stock of knowledge when all other inputs are held constant' (Romer, 1986). Here it is obvious that, Endogenous Growth Theory gives a central role for knowledge as a determinant of economic growth. It predicts positive externalities and *spill-over effects* from development of a high valued-added knowledge economy, which is able to develop and maintain a competitive advantage in growth industries in the global economy. To put in amore precise and short way, according to Endogenous Growth Theory, the knowledge as a good is of great importance and a determinant of the growth process, as once it is created, it can easily spillover into

the hands of others at zero marginal cost, and this process of spillover is the source of increasing returns that generate economic growth (Langlois, 2001).

As already mentioned, according to Endogenous Growth Theory, the capital K includes not only physical but also human capital. 'Investment (whether physical investment by a firm or human capital investment by an individual) leads to an increase in productivity that exceeds the private gain' (Grossman and Helpman, 1994). As a consequence, a distinction between the production function used by an individual firm and the function that applies to society as a whole is made within the framework of Endogenous Growth Theory. When an individual firm expands its use of capital, it gets only the private impact of this additional capital (Farmer, R. E. A., 2002). But, there is the second effect, namely the spillover effect, which is mentioned above. As the firm trains its workers in the use of new equipment, this learning-by doing effect is spread throughout the society and cannot be appropriated by any individual firm. In Figure 2.5, the graphic A illustrates the social production function in this model. The economy adds capital to the same stock of labor, GDP increases in proportion to the increase in capital. The graphic B illustrates the private production function. As the firm adds capital to the same stock of labor, each unit of capital becomes relatively less productive than the unit before it. This second function is the same with the production function within the framework of Neoclassical Growth Theory.

Endogenous Growth Theory that has tried to endogenize the technical change has been more recently transferred into spatial economics (Eraydın, 2003). This effort was pioneered by the economic geographer Krugman (1995), who has sought the resource of increasing returns in local externalities, which occur as a result of proximity, scale economies of agglomeration and local specialization in particular industries bringing further skill advantages. These local externalities result in economic advantages which bring international competitiveness into this locality and the firms therein.

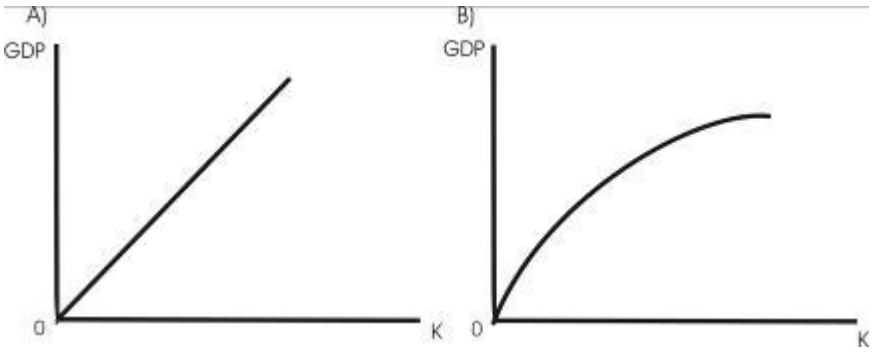


Figure 2.5 The Social and Private Production Functions Compared

In short, in Endogenous Growth Theory, the economy does not experience diminishing returns to capital unlike in the Neoclassical Growth Theory; the growth equation of the former is very different from the latter. As seen on Figure 2.6, the graph of the growth equation of Endogenous Growth Theory is a straight line. This implies that, as the economy applies increasing capital to the same fixed stock of labour, the additional output produced grows in proportion.

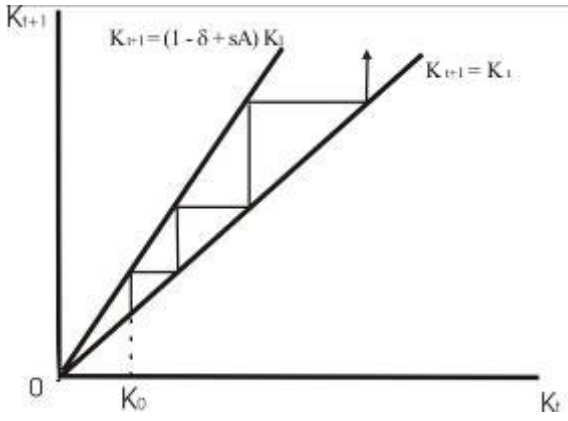


Figure 2.6 Endogenous Growth

Consequently, Endogenous Growth Theory tries to answer the questions of how growth takes place and why it takes place at different paces in different parts of the world. In this context, it does not aim to define the periphery and it does not have any description of what has been happening in the periphery. However, it says something very crucial for the one who aims to have a complete understanding of the periphery. First of all, divergence between the core and the periphery is foreseen. The scenario that this theory proposes for the future of the periphery is quite pessimistic.

As it is generally known, the neoclassical approaches tend to take the dynamics behind underdevelopment as original to the periphery. This is also true for the Endogenous Growth Theory. The already accumulated knowledge in a region or a country is seen to be characteristic for further capital accumulation. Here, the initial amount of capital is critical. For the fact that the initial amount of capital, both human and physical capital, is relatively low in the periphery, and as a consequence of increasing returns to capital, there will be divergence across the incomes of countries, in other words, there will be greater disparities between the core and the periphery.

However, as knowledge is introduced as a kind of capital, namely human capital, there appears new opportunities, new policy alternatives for the periphery. First of all, in the context of Endogenous Growth Theory, income values may be inadequate to show the development level of a country or a region. More intellectual variables, concerning the human capital are seen crucial for development. In other words, pure economic variables demonstrating income levels are seen inadequate to define whether a region is a part of the core or the periphery. Although Endogenous Growth Theory does not directly deal with the problems facing the periphery, both in physical and human capital accumulation, and tends to be rather descriptive in this sense, by introducing new variables concerning human capital and emphasizing their crucial role in the process of development, it makes a great contribution to our understanding and defining the periphery.

2.1.3 Development Economics-Development Theory

Growth theory focuses on how a nation's output-labour ratio grows. On the contrary, development theory, or rather Development Economics, tries to explain why nations posses very different income per capita and different standards of living and, what can be done about this situation. Development Economics as a field of study consists of two different bodies of thought; Modernization Theory and Structuralism. The conception of periphery in these two bodies of thought is very different. The former is optimistic about the future of the core and it argues that after following the stages of development that core had already completed, periphery can develop and be promoted to core level. The latter, on the other hand, is more pessimistic and argues that there are structural differences between the core and the periphery, and these differences account for the underdevelopment of the periphery.

The concept of development began to be widely used after 2nd World War. This concept had been influential especially until 1980s. In the period from 1950 to 1970s, Development Economics was more popular then ever. Development Economics deals with the dynamics of underdevelopment and tries to find out what kind of programs should be followed by the governments of underdeveloped countries. It finds it necessary to emphasize and justify the standard economics' involvement with the broad issues of poverty, misery and well-being, and from the fulfillment of basic needs and enhancing the quality of life (Sen, 1988). In this context, this branch of economics sees the GNP measures inadequate to show the development level of a country. Even though GNP, given other things, should enhance the living conditions of people, and will expand the life expectancy of that country, there are many other variables that also influence the living conditions, and any attempt to theorize development cannot ignore the role of these other variables.

As told before, two distinct lines of thought within development theory, namely Modernization Theory and Structuralism, are in disagreement in explaining the process of economic development. Modernization Theory argues that economic development comes with westernization, and adaptation and absorption of western values, whereas Structuralism argues that there are more structural factors behind

underdevelopment, inherent in backward societies, and, in order for development to be realized, these structural deficiencies should be eliminated. In fact, the development of Development Economics as a field of study has been around these two contradictory bodies of thought.

2.1.3.1 Modernization Theory

Modernization Theory defines development as an increase in production and efficiency, which is measured by per capita income. Internal factors in the countries, such as illiteracy, traditional agrarian structure, the traditional attitude of the population, the low division of labor, the lack of communication and infrastructure and etc., are held responsible for underdevelopment. While such internal factors are stressed, more structural features like historical background are considered to be of minor importance. According to Modernization Theory, in order to develop, peripheral countries (or regions) should follow the same stages that today's core countries had followed in their development process. In other words, the stages that have to be followed for development are pre-determined and same for the core and peripheral areas. Development is a unidirectional process, which is realized in the form of a transition from a traditional to a modern society. In this respect, core countries are modern (Western civilizations), whereas peripheral countries are those of traditional societies. More precisely, core is defined as 'modern', and periphery is defined as 'traditional'. Internal factors, cultural values and institutions are held accountable for the underdevelopment of periphery. Two main contributions to development economics within the framework of Modernization Theory are Rostow's Theory of Take-Off (1960) and Balanced Growth Theory.

2.1.3.1.1 Rostow's Theory of Take-Off

According to Rostow (1960), all societies will inevitably pass through the same stages in their development processes. He defines five types of societies; the traditional society, the society that has the preconditions for take-off, the society in take-off, the society that drives to maturity, and the society at the age of mass consumption. He defines the take-off as the interval during which the rate of investment increases in such a way that real output per capita rises, and this initial

increase carries with it radical changes in production techniques and the disposition of income flows which perpetuate the new scale of investment and perpetuate thereby the rising trend in per capita output (Rostow, 1960). In his argument the sequence of economic development consists of three periods; a long period (up to a century or more) when the preconditions for take-off are established; the take-off itself, defined within 2 or 3 decades; and a long period when growth becomes normal and relatively automatic

The first stage covers the above mentioned traditional society and the society that has the preconditions for take-off. He configures the first stage as follows;

> We start with a stable and traditional society containing an economy mainly agricultural, using more or less unchanging production methods, saving and investing productively little more than is required to meet depreciation. Usually from outside the society, but sometimes out of its own dynamics, comes the idea that economic progress is possible; and this idea spreads within the established elite or, more usually, in some disadvantaged group whose lack of status does not prevent the exercise of some economic initiative... New enterprising men come forward willing to mobilize savings and to take risks in pursuit of profit... Institutions for mobilizing capital appear; or they expand from primitive levels. Basic capital is expanded, notably in transport and communications, often to bring to market raw materials in which other nations have an economic interest, often financed by foreign capital. And, here and there, modern manufacturing enterprise appears, usually in substitution for imports... The rate of productive investment may rise up to 5 % of national income. (Rostow, 1975, p.89).

The beginning of the take-off can usually be traced to a particular sharp stimulus, which can take the form of a political revolution, which affects the balance of social power, the character of economic institutions, the distribution of income, the pattern of investment outlays etc. Take-off can also come about through a technological innovation, which stirs up a series of secondary expansion in modern sectors and has powerful external economy effects which will be exploited by the society. (Rostow, 1960).

The second stage is the stage in which the take-off itself takes place. This stage of take-off requires the conditions; (a) a rise in the rate of productive investment from

(say) 5 % or less to over 10 % of national income (b) the development of one or more substantial manufacturing sectors, with a high rate of growth; (c) the existence or quick emergence of a political, social and institutional framework which exploits the impulses to expansion in the modern sector and the potential external economy effects of the take-off and gives to growth an on-going character. Rostow defines the third stage as the long fluctuating story of sustained progress, in which;

> …Overall capital per head increases as the economy matures. The structure of the economy changes increasingly. The initial key industries, which sparked the take-off, decelerate as diminishing returns operate on the original set of industrial tricks and the original band of pioneering entrepreneurs give way to less single-minded industrial leaders in those sectors; but the average rate of growth is maintained by a succession of new, rapidly growing sectors, with a new set of pioneering leaders. (Rostow, 1975, p.93).

Here Rostow, in the beginning, takes both the naturally wealthy and traditional societies as pre-take off societies. It almost proposes the same stages of progress for two structurally different cases; the core and the periphery. In other words, the periphery is characterized as how the core formerly was; traditional, economically not prosperous, democratically unstable, directed by institutions that are reluctant to development, and etc.

2.1.3.1.2 Balanced Growth Theory

Balanced Growth Theory (Rosenstein Rodan, 1943, 1961,1970; Nurkse, 1953, 1975) sees the main barrier against development in the narrow market and limited market opportunities. The reason for the smallness of market is seen as capital shortage and proposed way for breaking off this limited market is mobilizing the sources. According to Nurkse and Rosenstein-Rodan, the single investments cannot be efficient in underdeveloped countries, because of the inadequacy in infrastructure and the low demand that comes out of low income. As the demand is low, the investor will be pessimistic about making an investment. Rodenstein-Rodan (1943) argues that when a system of differentiated industries is established, then there will be two kinds of externalities. First is the externality that is ensured for any single firm operating in a growing economy. Second is the externality that is provided by

the growth of other industries in the same economic system. In order for an underdeveloped economy to get use of both of these externalities, a comprehensive and complementary private and public investment program should be put into use. (Rodenstein-Rodan, 1943).

In this theory, the main deficiency of the periphery is the small size of its market. The market is small, because the demand for goods and services is small, and the reason why demand is low is that income per capita is low. Nurkse explains this as the vicious circle of poverty. He defines it as a circular constellation of forces tending to act and react upon one another in such a way as to keep a poor country in a state of poverty, and summarizes it as such; 'a country is poor because it is poor' (Nurkse, 1961, p.4). He explains why single investments will be ineffective in an underdeveloped country as such;

> It is a matter of common observation that in the poorer countries the use of capital equipment in the production of goods and services for the domestic market is inhibited by the small size of the market, by the lack of domestic purchasing power… The limited size of the domestic market in a low-income country can thus constitute an obstacle to the application of capital by any individual firm or industry working for that market. In this sense the small domestic market is an obstacle to development generally. (Nurkse, 1975, p.117).

Nurkse sees the crucial determinant of the size of the market as its productivity. 'Production creates its own demand, and the size of the market depends on the volume of production. The market can be enlarged only through an all-round increase in productivity. Capacity to buy means capacity to produce.'(Nurkse, 1975, p.119). And he sees the solution in the overall enlargement of the market, and an economy which includes complementary and comprehensive industries, which can become each other's customers. It not only envisages a 'balanced growth' and 'diversification' of investments in any sub-sector of the economy, but also investments that will maintain a balanced development between agriculture and industry, and among the regions of the country.

In brief, Modernization Theory sees development as equal to westernization, which implies the adaptation of western values, and accordingly, defends the idea that in

order for an underdeveloped economy to develop, it should follow the same way, which the core has already passed through. In this respect, the periphery should organize its institutions like at the core, and make a clear definition of their tasks. In other words, it should get loose from its traditional structure, internal factors and institutions that are responsible for underdevelopment. In addition to that, as proposed by Balanced Growth Theory, an underdeveloped economy should maintain the development of complementary industries that will create market for each other and diversify the investments in any sub-sector of the economy, like at the core. However, here, social factors such as historical characteristics and market dependencies, which can affect development process, are not included in the analyses. They are seen either as of minor importance, or even totally considered out of concern. Furthermore, here, the experiences of the core so far are presented as a goal to be reached by the periphery. However, the core has never been periphery in its old days and it is implausible to propose same stages of economic progress for them. So, what the core has made in its development process cannot be presented to the periphery as a social and economic policy. In fact, what the Modernization Theory here makes, namely proposing the same course of development for the periphery with the core, is the result of the lack of concern on social factors inherent in the periphery. The periphery has a totally different historical background, cultural and even religious values, and institutional structure. Moreover, the ties of the periphery to its so-called traditional structure are stronger then elsewhere. As for this, it should be never forgotten that the structural features of the periphery have been as effective as the economic ones until its current situation.

2.1.3.2 Structuralism

Structuralists argue that development is something more than output growth and cannot be reached through free market mechanism. At this point, they disagree with economists belonging to neoclassical tradition. Unlike neoclassicists, in other words the orthodox camp, who assumed a smoothly working market mechanism, structuralists tried to develop a more structuralist approach and defined development as a social phenomenon, in which social aspects are involved. In this respect, their

view about the ability of free market to bring income convergence among nations is more pessimistic than that of neoclassicists. Together with pure economic factors, they held structural issues such as dualism, population growth, educational attainment, inequality, urbanization, agricultural transformation health, historical origin, etc. responsible for level of development. According to structuralism, such structural features and institutions of core areas are geared towards growth, while those of the periphery cause underdevelopment.

There are two important theories within structuralist framework; Unbalanced Growth Theory and Cumulative Causation Theory.

2.1.3.2.1 Unbalanced Growth Theory

According to Unbalanced Growth Theory, which is developed by Hirschman (1958), some disequilibrium should be created in different areas of the economy, so that investments can enlarge upwards and downwards, creating externalities for the next investment in a cumulative process.

> …our aim must be to keep alive rather than to eliminate the disequilibria of which profits and losses are symptoms in a competitive economy. If the economy is to be kept moving ahead, the task of development policy is to create tensions, disproportions and disequilibria… Therefore the sequence that leads away from equilibrium is precisely an ideal pattern of development from our point of view: for each move in the sequence is induced by a previous disequilibrium and in turn creates a new disequilibrium that requires a further move. (Hirschman, 1975, pp.133).

The disequilibrium starts with a high investment in industry A. This expansion in industry A creates externalities appropriate not only for the industry A itself, but for the industry B as well. The consequent expansion in industry B will bring externalities for industry A or C, and so on. Here Hirschman speaks of the 'investment creating character of investment'. What is meant here is *complementarity* which means increased production of A will lead to pressure for increasing supply of B. Complementarity is any situation where an increase in the demand for commodity A and its consequent increase in its output brings an increased demand for commodity B.

Very basically, what Hirschman proposes for the periphery to develop is to utilize the disequilibrium conditions and the externalities, which will be created by this disequilibrium. According to him, growth process is necessarily unbalanced (Hirschman, 1958).

In addition to all those above mentioned propositions of Hirschman, it is also required to point out that, by proposing disequilibrium as necessary for growth, he has not only been influential in the literature of development economics within the structuralist framework, but in that of regional development theory as well. His contributions to regional development theory from a disequilibrium perspective will be mentioned later in more detail.

2.1.3.2.2 Cumulative Causation

Myrdal (1944, 1957a, 1968), the founder of the theory of 'cumulative causation' explains this concept as 'the possibility that changes in a given variable in the social system will not call forth countervailing changes but, instead, supporting changes, which move the system in the same direction as the first change but much further" (Myrdal, 1957b, p.13). According to Myrdal, the periphery has a low national income per worker or per head of population. As conditions of production, it has a small industry and, in all sectors, especially in agriculture, the techniques of production are primitive. The savings/income ratio is low. This is both the result and the cause of the first condition, namely the low output and income. As a result of both the first and the second conditions, the levels of living in the periphery are very low. There prevails insufficient food intake, bad housing conditions, inadequate public and private provision for hygiene and medical care, etc. in the periphery. Moreover, the attitudes toward life and work are negative. The level of work discipline is low; there is lack of alertness, adaptability, ambition, cooperation and experiment. These negative attitudes effect and underpin the prevailing conditions of production mentioned as second category. In addition to that, the community in the periphery is characterized by institutional conditions unfavorable for economic development. To be more precise, the periphery is characterized by a land tenure system detrimental to agricultural advance; underdeveloped institutions for

enterprise, employment, trade, and credit; deficiencies of national consolidation; imperfections in the authority of government agencies; instability and low effectiveness in national politics; low standards of efficiency and integrity in public administration; ineffective organs for provincial and local self-government; and a weak infrastructure of voluntary organizations. This whole set up of unfavorable conditions shares responsibility for the low levels of productivity and low incomes and thus, for the low levels of living. These categories of conditions and their being both the cause and the result of each other constitutes the cumulative causation, which gives rise to the core-periphery distinction and makes this distinction permanent. Figure 2.7 summarizes this cumulative causation between the categories of conditions.

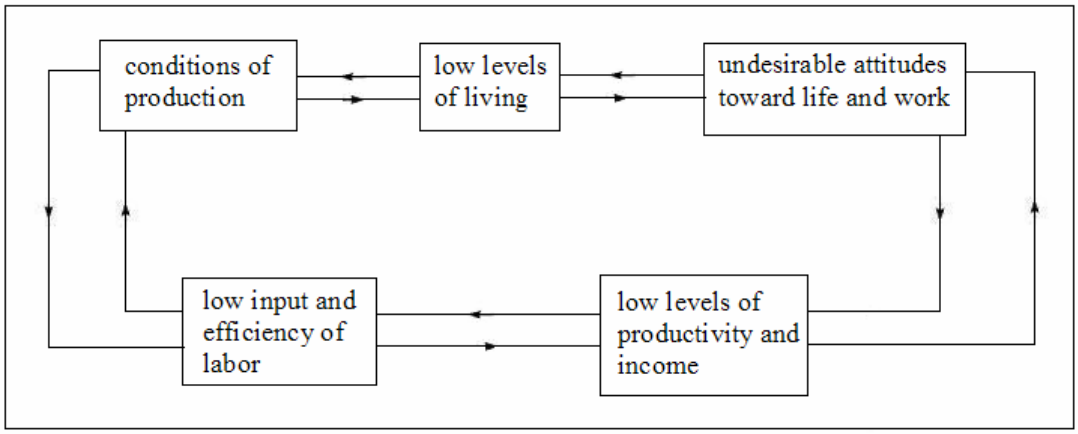


Figure 2.7 Cumulative Causation

On the international level, Myrdal explained that 'by circular causation and cumulative effects, a country superior in productivity and incomes will become more superior, while a country on an inferior level will tend to be held down at that level or even to deteriorate further - as long as matters are left to the free unfolding of market forces' (1970, p. 279). Through this process, the former country will continually acquire external and internal economies (Myrdal, 1970, p. 279-80). Here Myrdal refers to a tension between the 'backwash effects' of international trade and

capital flows that promote inequality and the 'spread effects' that mitigate it, and this tension underpins the cumulative processes. These backwash effects consist of the above mentioned internal and external economies, and from every center of growth these backwash effects emanate to other countries of the periphery. Shortly, it can be said that backwash effects originates at the core, as being positive for its economy, whereas they tend to be negative for the periphery. The spread effects, on the other hand, consist of the purchase of domestic inputs by foreign investors in underdeveloped countries, as well as the transfer of skills and the 'spirit of enterprise.' However, according to Myrdal, the backwash effects overwhelm these spread effects (Myrdal, 1970, p. 282). Indeed, the greater the disparities that already exist between trading countries, the more likely are backwash effects to dominate. And, this will cumulatively increase the disparities between the core and the periphery.

The process is basically the same at the regional level. Myrdal explains the interregional core-periphery distinction again with these backwash and spread effects. A growing point established by the location of a factory or any other expansional move, will attract other businesses, skilled labor, and capital. It will have backwash effects that keep down or even impoverish the regions which do not have such growing points, if the spread effects are not strong enough.

Consequently, structuralist body of thought, especially Myrdal's theory of cumulative causation, can be understood as a challenge to static equilibrium theory. According to neoclassical analysis, mechanisms working both nationally and internationally will always work towards market equilibrium. However, as mentioned before, it is criticized because it fails to explain the persistence of underdeveloped regions and differences in development of nations. Myrdal's theory addresses this failure of static equilibrium theory by replacing it with the process of cumulative causation which accounts for the continued differences in a range of economic development indicators between the core and the periphery. The natural tendency for concentrated growth is sustained by mechanisms working towards disequilibrium. These mechanisms can be the tendency for capital and labor to move in the same direction towards the already developed regions, and the increased

competitive advantage these regions acquire from economies of scale. Once a country or region attains an advantage through these mechanisms, the process of cumulative causation leads to a virtuous circle of growth, whereas the same process leads vicious circle of poverty in the lagging regions, namely the periphery.

2.1.4 Neo-Marxist Economics

The theories that have been developed from the end of 1950s on and that are based on the Marxist tradition are called Neo-Marxist theories. With the rise of Neo-Marxist theories, there has begun a breaking off from Eurocentrism. Most importantly, in these theories capitalist development was seen as something negative. Moreover, capitalism is defined as a negative miracle, an illness and the capitalist development as something that trickled in at our disadvantage. (Wallerstein, 1996). In addition to that, according to Dependency Theory, the only condition of development for the underdeveloped countries is seen as a complete break off from capitalism.

2.1.4.1 Dependency Theory

Very basically, Dependency Theory (Baran, 1957; Frank, 1966, 1969; Amin, 1974 et al.) argues that, the exploitation of the pre-capitalist periphery by the capitalist core, namely the capitalist expansion from the core to the periphery, results in the underdevelopment of the core and the development of the periphery. To put it more precisely, it corresponds to the roots of underdevelopment with the expansion of European industrial economy towards already inhabited regions, some of which were densely populated, whose old economic systems were of various but invariably pre-capitalistic types. (Furtado, 1964). According to Furtado,

> …the effect of the impact of the capitalist expansion on then archaic structures varied from region to region, being conditioned by local circumstances, the type of capitalist penetration, and the intensity of penetration. The result, however, was almost always to create hybrid structures, part tending to behave as a capitalistic system, part perpetuating the features of the previously existing system. The phenomenon of underdevelopment today is precisely a matter of this type of dualistic economy. (Furtado, 1964).

Shortly, as a result of this exploitation and capitalist penetration, a dualistic structure emerged in the periphery. By the free move of international capital to less developed areas where labor cost is low, namely through the globalization of capital, this dualistic structure becomes even more significant. According to Dependency Theory, this exploitation gave way to 'unequal exchange' relations, in favor of the core. (Amin, 1974). This is so, because 'whenever the capitalist mode of production gets into relations with precapitalist modes of production, transfers of value take place from the precapitalist to the capitalist formations, as a result of primitive accumulation.' (Amin, 1974). Accordingly, the reason of underdevelopment of periphery is seen as the value transfer from the periphery towards the core, which occurs as a result of these unequal exchange relations. These relations have prevented the occurrence of a successful capitalist development in the periphery and reinforced the position of the periphery as the extension of the core.

This unsuccessful capitalist development, brought by the spread of the capitalism, demonstrated itself as an extreme distortion and disarticulation in the economies of the peripheral countries (Amin, 1974). In other words, the development of the capitalism in the periphery distorted its inner structure, created a disarticulated economic structure which has no integrity and coherence within itself.

Consequently, according to Amin (1974), the capitalist development in the periphery has possessed three main characteristics. First, in the periphery, there is the unevenness of productivity as between sectors, that is, there is a great unevenness in productivity between one sector and another in the sense of production per capita. Although the core has powerful economic forces that diffuse the benefits of progress throughout the economy, in the periphery, the distribution, as between sectors, of the working population and of production, is extremely divergent. Second, in the periphery the economy has a disarticulated structure. The economy of the core forms a coherent whole, made up of sectors that carry out substantial inter-industrial or inter-sectoral exchanges. However, there is no such integration in the sectors, including tertiary sectors, of a peripheral economy. This disarticulation of the economy prevents the development of any one sector from having a mobilizing effect upon the rest. Any articulating effect is transferred to the supplying countries. So, the

sectors of the peripheral economy function as those of the extensions of the dominating core. Third feature is defined as the domination from outside or as external dependence. Amin explains this dependence as occurring in the plane of external trade, in two manners. First, the exports of the periphery are made up of primary products and its imports are made up of manufactured goods. Second, this trade is carried on mainly with the core, although the trade of the core is mainly carried on within the core. However, the exchanges in a peripheral economy are being essentially made with the outside world. Some of the sectors of the periphery are made up of a few large-scale enterprises, the governing centres of which are outside the peripheral economy. To put more precisely, as for the exchanges, the periphery is much more dependent on the core, than the latter is dependent on the periphery.

Amin concludes that, as economic growth proceeds, none of these three features lessens. On the contrary, they aggravate. He also proposes that the peripheral formations tend to converge toward a pattern that is essentially the same, regardless of their different origins. Finally, he foresees an almost homogenous periphery made up of distinct peripheral formations that share their most essential features. These features are: '(1) the predominance of agrarian and commercial capitalism in the national sector of the economy; (2) the creation of a local bourgeoisie in the wake of dominant foreign capital; (3) the tendency to a peculiar bureaucratic form of development which is characteristic of the periphery in our own day.'

Here, Dependency Theory disagrees with Modernization Theory. According to dependency school, modernization theorists viewed the problems and obstacles of development as being temporary in nature and internally rooted. Furthermore, unlike Modernization Theory, Dependency Theory defines underdevelopment as a discrete historical progress, through which economies that have reached a high level of development have not necessarily passed. (Furtado, 1964). From this, we can derive the conclusion that the progress of a developed and an underdeveloped country, or a region, do not necessarily follow the same path. In addition to that, Frank argues that modernization perspective could not explain the distribution of underdevelopment

and the lack of autocentric development in the periphery. (Chew and Denemark, 1996).

> Received theory was that the principal obstacle to development was the shortage of capital. I countered this universally accepted supply-side theory with the essentially Keynesian demand-side argument that the real economic obstacle was insufficient market demand for productive national investment…(Neoclassical and monetarist development theory) posited that development would result from gradual reforms in dual economies/societies, in which the modern sector would expand and eliminate the traditional one…I quarrelled with these orthodoxies…(Frank, 1996).

Rejecting the notions of Modernization Theory such as, 'original' development, 'traditional' society, and subsequent 'stages of growth', Frank developed the notion of the 'development of underdevelopment', which he saw 'as the result of dependence and as the opposite side of development within a single world capitalist system. By the term development of underdevelopment, Frank means that capitalism does not create the conditions of the capitalist development in the periphery. Rather, it only creates the conditions of capitalist underdevelopment.

To put in a more precise and general way, dependency theory argues that the underdevelopment is the result of core-periphery relations. Core distorts the development process of the periphery, and attracts the economic surplus toward itself. In other words, capitalism produces development for the minority (core), and underdevelopment for the majority (periphery). And, dependence on the core is the obstacle the periphery faces in its endeavour for development.

In short, according to Dependency Theory, the roots of underdevelopment are tied to colonialization and the capitalist system. The reason for underdevelopment is seen as something neither 'original' to the periphery, nor as something traditional. Rather, the core-periphery relations are explained as the outcome of capitalism, and the underdevelopment is tied to these core-periphery relations, which is characterized by unequal exchange which refers to unfair differences between the core and the periphery in terms of trade. The periphery is dependent upon the core, and carries out most of its international trade with core, whereas the core carries it within itself.

This unequal exchange leads to a value transfer from the periphery to the core and this process underpins the existing core-periphery inequality. Dependency scholars tend to see the development for the periphery as something impossible, unless it puts an end to its linkage with the capitalist world. In other words, the core-periphery polarization is seen as inescapable by dependency theorists. Thus, this understanding does not allow for the possibility of upward mobility within the system, which means, as Packenham argues (1992) Dependency Theory is primarily interested in changes in forms of dependency rather than in changes away from dependency.

The core-periphery relation implies the unequal exchange of different commodities. These commodities, as mainly mentioned by Amin, are taken as industrial goods and primary products. The core exports industrial goods and the periphery exports raw materials. However, this 'industrial-good-primary goods' definition of the core-periphery can no longer be adapted to the contemporary world economy. The world economy is rapidly changing and as Arrighi suggests (1985), the relevant distinction is no longer between the productions of industrial versus primary goods, but between 'intellectual' activities, namely knowledge based activities. The transnationalization of capital brings about knowledge based activities as having critical role in development and Arrighi argues that this transnationalization of capital has become the key mechanism through which the core, the semi-periphery and the periphery are all reconstituted and reproduced. However, in Dependency Theory, there is a neglect not only of the importance of such knowledge based activities, but of endogenous factors of development inherent to a country or a region, as well.

Consequently, Neo-Marxists do not define the periphery as appropriate to rapidly changing world economy. They search for the solution somewhere out of this contemporary world economics by proposing 'delinking' of the periphery from the capitalist system, and do not consider the endogenous factors such as human capital, institutions, historical origin etc. as characteristics of being a core or a peripheral area. On the other hand, if defining the periphery is seen as a continuously evolving process, these theories can said to have made one of the greatest contributions to the pre-1980s period of this process. However, it would be difficult to make any interpretation from them and apply to the peripheral areas.

2.1.4.2 World-Systems Theory

World-Systems theory (Wallerstein, 1976) is another theory that can be taken as an extension of Neo-Marxist tradition. Wallerstein argues that by the late 15th and early 16th centuries, the world economic system emerged as a continuation of the feudal crisis. This was the first time that an economic system embraced much of the world with links that replaced the national and other political boundaries. This new world economy differed from the old system comprised of empires, for it was not a single political unit. From then on, states depended on a system, directed the flow of economic goods from the periphery to the center. This value transfer occurred through commercial monopolies, combined with the use of force. This was a totally new world system. What is being referred here is the World-System Theory. Wallerstein defines this world-system as below:

> In order to describe the origins and initial workings of a world system, I have had to argue a certain conception of a world-system. A world-system is a social system, one that has boundaries, structures, member groups, rules of legitimation, and coherence. Its life is made up of the conflicting forces which hold it together by tension and tear it apart as each group seeks eternally to remold it to its advantage. It has the characteristics of an organism, in that it has a life-span over which its characteristics change in some respects and remain stable in others. One can define its structures as being at different times strong or weak in terms of the internal logic of its functioning. (Wallerstein, 1976, p.229.)

The new capitalist world-system was based on an international division of labor that determined relationships between different regions. The labor conditions in each region were different from one another. Wallerstein proposes four different categories, which describe each region's relative position within the world. These categories are, core, semi-periphery, periphery, and external, into which all regions of the world can be placed. (Wallerstein, 1976). The core regions benefited the most from the capitalist world economy. The characteristic feature of core development is that it consists of a complex variety of economic activities such as mass-market industries, commerce of both a local and interregional range controlled by an indigenous bourgeoisie, and a relatively progressive agricultural middle-class.

(Cookie, 1983). The states of the core developed as strong central governments, extensive bureaucracies, and large mercenary armies. This permitted the local bourgeoisie to obtain control over international commerce and extract capital surpluses from this trade for their own benefit. As the rural population expanded, the small but increasing number of landless wage earners provided labor for farms and manufacturing activities. The impoverished peasants often moved to the cities, providing cheap labor essential for the growth in urban manufacturing (Wallerstein, 1979). In this process, first the core comes to be dominated by capitalist development. Moreover, the core consists of countries that are major powers as both politically and economically. Their economies are consumer oriented and the workers are highly paid. There is a high rate of capital accumulation and great advancement in technology. The next group on the world system ladder is the "Semi-Periphery". These areas are either on the rise to becoming core areas or falling out of the core. They can also serve as buffers between the core and the peripheries. Very generally, they can be said to be less powerful than the core but more powerful than the periphery. The countries of the semi-periphery are the ones that have regressed from core status through undergoing a process of deindustrialization and the ones that experience a rapid industrialization which may bring them to core status. Wallerstein gives Spain and Portugal that have become semi-peripheries, although they were once at the core. The third group is the "Periphery." These areas constitute the poorest countries, commonly known as "third-world" countries. The periphery is exploited by the stronger countries and used to produce many goods that are typically exported at cheap prices and sold in the core. Basically peripheral areas are underdeveloped, and easy to exploit. They rely on natural resources, are faced with huge trade disadvantage, and lack of both technology and capital. There has been unequal exchange between the core and the periphery, leading to the transfer of wealth to core. As this unequal exchange relations continue the gap between the rich and the poor increases. The last category in the world-system is the external areas, which existed in pre-1990s. These areas consisted of countries that remain outside the modern world economy, because they maintained their own economies separate from the rest of the world.

However, Wallerstein, introducing an additional component, namely the semi-periphery to the basic core-periphery understanding, opened up the possibility of mobility within the core-periphery hierarchy. As already pointed out, this mobility can either be upward or downward. For Wallerstein, the terms core and periphery did not refer to static situations of countries as such, but to processes. According to him, there are core processes and periphery processes. The core processes tend to occur in space defining such places as core countries or regions. Just the same way, there are peripheral processes that occur in space defining peripheral regions or countries. And, a semi-periphery is also a process, in which both core and peripheral processes may occur together. As introducing this third tier, the semi-periphery, Wallerstein distinguishes from dependency scholars and other neo-Marxists.

2.1.5 Institutional Economics

Institutional Economics, which can be said to be relative pessimistic about the future of the periphery, at least when compared with traditional neoclassical theory, argues that the development of the periphery cannot be taken for granted, for it is not a predetermined, mechanistic process taking place in an equilibrium system that is ruled only by market forces. Instead, Institutional Economics supposes that development is an evolutionary and institutionalized process (Veblen, 1919; Commons, 1931), in which institutions play a vital role and factors such as *chance* and *selection*, *routines* and *path-dependency* are effective (Boschma and Lambooy 1999). In other words, it recognizes the path- and context-dependent nature of the economic life (Amin, 2000), and hold this dependency accountable for being a peripheral or a core region.

According to institutionalists, market is a social construction, not a natural phenomenon (Boyer, 2000), and economic processes cannot be understood without looking into the institutional orders. Jessop (2000) summarizes this argument of institutional economics in a very precise and clear way:

> The differential competitive advantages of nations, variations in national or regional systems of innovation, contrasting historical patterns of finance-industry relations, and different modes of governance, to take just four examples, cannot be fully explained

> without referring both to structural coupling and co-evolution of economic and extra-economic systems and to the differential embedding, disembedding and re-embedding of economic relations in the lifeword and various extra-economic institutional orders (Jessop, 2000).

Early institutional thought developed between 1880 and mid 20th century. The understanding of institutions and discussions thereof changes according to different theorists. 'Some theorists focused their analyses on the wider institutional structures, on constitutions and political systems, on language and legal systems, whereas others emphasized the emergence of common meanings and normative frameworks out of social interaction' (Scott, R.W., 1995).

The definition of institutions varies in social theory. According to Knight, an institution is first a set of rules that structure social interactions in particular ways and secondly he adds that, for a set of rules to be an institution, knowledge of these rules must be shared by the members of the relevant community or society. (Knight, J., 1992). In addition to that, Storper mentions expectations and conventions when defining institutions. 'Institutions consist of persistent and connected sets of rules formal and nonformal, that prescribe behavioral roles, constrain activity, and shape expectations and overlap with conventions.' (Storper, M., 1997). According to Lerner;

> 'Institutions are behavioral patterns performed by people whose goal is to enhance as much as possible the values that they hold important. The process involves expenditure of available skills and knowledge upon the raw materials at hand... The process becomes an institution when the application of techniques to the resources is formulated into a set pattern, which is productively efficient... (Lerner, D., 1964)

One can also make a simple identification as formal institutions and non-formal institutions. Non-formal ones can be perceived as rules, habits that are shared by a society. On the other hand, in modern societies there are formal institutions such as law, soldiers, police, economic institutions etc. in addition to social institutions and non-formal institutions. 'Common to both formal and non formal institutions is their

need to give order to expectations and allow actors to coordinate under conditions of uncertainty.'(Storper, M., 1997)

Although its birth dates back to much earlier times, the school of Institutional Economics has gained increasing prominence especially after 1970s. In other words, the 'old' institutional economics was rediscovered (Hodgson, 1988, 1998), parallel to the crisis of Fordism and emergence of new political forms, new social movements, and new systems of production (Peck and Tickell, 1994). In these *new times*, production became flexible; capital became mobile; the world became smaller; human beings moved from absolute distance to time distance; the road networks lefts their place to information networks; capital, production, market, institutions, culture, mass media became globalized. To put it more precisely, there has been a shift in the way social, economic and political activity is perceived. 'Central to this shift is the perception that individuals do not exist as autonomously choosing actors, making atomistic rational choices in relation to their interests' (Healey, Cameron, Davoudi, Graham, Madani-Pour, 1995). This intellectual shift has been observed in other fields of inquiry such as political science, sociology, and economics. First of all, the whole work represents a major intellectual challenge to economic reductionism which assumes that our human relations are dominated by economic considerations, and to instrumental rationality which assumes that our behavior can be primarily explained as derived from rational calculation of our individual interests atomistically conceived. It also challenges structural reductionism, which assumes that human behavior can be explained by a limited set of general structural forces, such as capital, or the power of elite, or culture (Healey, Cameron, Davoudi, Graham, Madani-Pour, 1995). According to new institutionalists, individuals exist in a social milieu where norms, values, and ways of doing things are evolving and being transmitted. And this transmission occurs through the combination of experience and interpretation.

So, within the frameworks of pre-1980 extensions of Institutional Economics, namely New Institutional and Evolutionary Economics, individuals are perceived as agents of a social milieu. However, after the crisis of Fordism, it was not only the individuals whose position has changed, but localities as well. The above mentioned

new political forms, new social movements and new systems of production have begun to coalesce around a flexible or post-Fordist regime of accumulation (Peck and Tickell, 1994). As a result of these changes, we became more uncertain of ourselves and conscious of our differences with others. Now, nothing is neatly tied to places; neighborhoods, cities, regions, and nations and our lives are more prone to conflicts then before. Moreover, the ability to address such conflicts is a requisite for an urban region to develop, to overcome drawbacks. Thus, institutions began to be reconsidered by contemporary theorists interested in Evolutionary Economics or New Institutional Economics, as necessary tools for being able to address these conflicts. And as Amin and Thrift describes, such ability is a part of 'institutional thickness' of a region. They suggest that localization tends to be confined only to a limited number of regions which can offer information, innovation, knowledge and institutional-rich environments (Amin and Thrift, 1994; Amin, 1994). Moreover, localities have now become 'hostile brothers', 'flinging themselves into the competitive process of attracting jobs and investment by bargaining away living standards and regulatory controls' (Peck and Tickell, 1994). And, localities that have supporting institutions in this process are successful in this competition, whereas those who have obstructive institutions are the losers. To put it more precisely, institutions are 'templates for, or constraints upon, future development' (Amin, 2000).

In our contemporary era, universities, labor unions, social insurance, chambers of professions, civil societies, local authorities, training agencies, trade associations, financial institutions, development agencies, innovation centers, clerical bodies, unions, government agencies providing premises, land and infrastructure, and other international institutions etc are accepted as institutions on their own (Amin and Thrift, 1997). According to Institutional Economics, these institutions are especially effective in national and regional growth in the way that they increase the capabilities of regions in processes of innovation, economic development, and creating an identity. In the existence of such institutions, provided that they operate efficiently, regions will be supported and orientated in reaching their goals to

become developed where grounds for learning, knowledge dissemination, and innovation are found.

Shortly, Institutional Economics and its more contemporary extensions can be considered as a challenge to the Neoclassical Economics, which understands the economy as 'a collection of atomized firms and markets driven by rational preferences and a standard set of rules', and which conceives development as 'a stable system of counterbalancing forces regulated by a fluid and self-adjusting market mechanism' (Street, 1988). Contrary to Neoclassical Economics, Institutional Economics argues that economy is shaped by enduring collective forces which include formal institutions such as rules, laws and organizations, as well as informal or tacit institutions such as individual habits, group routines and social norms and values (Amin, 2000). Accordingly, development is perceived as a complex cultural process (Street, 1988). Institutional Economics further argues that forces inhibiting social progress are rooted in institutional patterns of behaviour that are present in all societies, but seems to be particularly obstructive in the cultures of many less developed countries.

This strong emphasis on institutions and the great role attributed to them in development process brings together a new understanding of the periphery. Periphery is now no more than an underdeveloped region or groups of regions, whose income is lower then those of the core. Instead, periphery is the one whose institutional structure is obstructive for development, such that, these institutions do not support the peripheral region in its process of innovation, regional development and creation of a regional identity. Core, on the other hand, is the one whose institutions are supportive and assistant in development process, such that they help the region create a cooperative environment that will facilitate development, create knowledge and new ideas, and adapt to changing conditions. In this respect, the indicators of being a core or a peripheral region have changed with this new institutional turn in theory. Now, together with income variables, institutional ones, such as number of civil societies, universities, unions, development agencies, etc. are also considered as indicators of level of development.

2.2. Periphery in Regional Development Theories

The traditional regional development theories are classified into four. First is the stage theory of regional development, which is an extension of Location Theory, which existed long ago and developed independently from regional development theories. These theories' main emphasis is on the reduction of transport costs. According to them, the core has been successful in minimizing the transport costs and became the location of economic agglomeration. To be more precise, the only explanatory element of agglomerations is transport costs. The second theory is the Export-Base Theory (Economic-Base Theory), which is developed by North (1955), as a reaction against stage theory. According to North, development comes out of successful exports. This theory emphasizes very much on natural resource endowment of regions, as a determining factor of being a core or a periphery. The third is Growth Pole Theory. According to this theory, development is necessarily unbalanced. Growth occurs in certain points or growth poles, as a consequence of high productivity of certain large scale, key or motor industries. The existence of large scale investments is crucial in determining whether a region is a core or a peripheral one. The last theory is Polarization Theories, which stresses on the roles of cities on regional development. These theories are mainly developed by Freedmann and see the core regions as metropolitan centres, which are the foci of human activity other then agriculture. The periphery on the other hand constitutes the rest of the country, namely the lagging regions which are dependent on the core. These theories mention a flow of capital that occurs from the core to the periphery, but they further suppose that, as spatial integration goes on and urban growth disperses, the wide gap between the core and periphery will narrow.

New generation regional growth theories, namely Territorial Models of Development, on the other hand, lay stress on the role of human capital, knowledge creation and recreation, learning capacity and suitable institutional endowment, in defining whether a region is a core or a peripheral one. These models are *industrial districts*, *innovative milieux*, *regional innovation systems*, *new industrial spaces*, and finally *learning regions* model that constitutes the synthesis of the first four (Eraydın, 2002, 2003). Very basically, according to all of these models;

innovativeness, learning capacity and institutional endowment are the determinants of regional development. Only through attaining a higher position in these three respects, can the periphery develop, and the core sustain in its current situation. .

As it is above mentioned, each of these theories has different origins and different explanations for the periphery (See Table 2.2 and Figure 2.8). First of all, Location Theory and its extension stage theory of regional development originate from Neoclassical Economics and are developed within the framework of neoclassical assumptions. For this reason, Location Theory considers the development of the periphery as something possible which will be achieved after certain stages. On the other hand, Export-Base Theory comes out as an extension of Keynesian Economics, and accordingly, it takes the issue of regional development within the context of Keynesian welfare state. Polarization Theories and Growth Pole theory, however, originate from Development Economics and they see the core-periphery structure, namely the unequal development, as the inevitable outcome of economic development. In this respect, they totally differ from location theory and export-base theory in considering the issue of regional development and peripherality. In addition to these, new generation regional development theories that are territorial models of development show a relative eclectic structure. They are mainly influenced by Institutional and Evolutionary Economics to a lesser extent.

Table 2.2 Economic Development, the Core and the Periphery in Regional Development Theories (Source: Author's Own Elaboration)

		Development	Core	Periphery
Traditional Regional Development Theories	Location Theory - The Stages Theory (Spatial equilibrium economics)	-a typical sequence of stages through which regions move -analyzed in terms of firm's location decision -transport cost account for agglomeration (Weber) - location of settlements must be as advantageous as possible and fill all of space (Lösch) – hexagons	-at the last phase of development -takes advantage of agglomeration economies to reduce costs -specialized in tertiary activities -exports capital, finished products, skilled personnel and specialized services	-lack of necessary infrastructure; mainly transport infrastructure -failed to make the transition to industrial base -imports capital, finished products, skilled personnel and special services
	Growth Poles	- necessarily unbalanced ; appears not everywhere, but in points or poles with variable intensities - brings *trickling down* (+) and/or *polarization* effects (-) (Hirschman) - functioning of *propulsive industries* and units related to them	- pole of geographically agglomerated industries and activities -existence of leading propulsive industries with relatively new and advanced technology -existence of large scale investments	-lacks propulsive, large scale industries -dependent on geographically agglomerated poles -lacks social overhead capital -functions as the hinterland of the core

Table 2.2 (continued)

		Development	Core	Periphery
Traditional Regional Development Theories	Polarization Theories (Role of cities in regional development)	-taken as regional economic growth -realized by dispersion of urban growth and improvement in communications -externally induced -tends to occur in a matrix of urban regions	-large urban centres of industry, commerce, and administration -posses high potentials for further economic growth and expansion -ideas, technology, capital, ideas favorable to development are generated	-lagging regions -dependent and lacking economic autonomy -areas of declining or stagnant economy -experiences net outflows of people, capital and resources to the core -offers only modest development prospects
	Polarization Theories (Role of cities in regional development)	-taken as regional economic growth -realized by dispersion of urban growth and improvement in communications -externally induced -tends to occur in a matrix of urban regions	-large urban centres of industry, commerce, and administration -posses high potentials for further economic growth and expansion -ideas, technology, capital, ideas favorable to development are generated	-lagging regions -dependent and lacking economic autonomy -areas of declining or stagnant economy -experiences net outflows of people, capital and resources to the core -offers only modest development prospects

Table 2.2 (continued)

		Development	Core	Periphery
Traditional Regional Development Theories	Export _Base Theory	- regional growth -regional growth rate is a function of regional export performance -contingent upon comparative locational advantage, initial resource endowment, regional exports, mutual reinforcement of linkage and multiplier effects	-successful in exports (demand for exports is high) -diversified export bases -has special locational advantages that lower the transfer and processing costs of exportable commodities -not necessarily industrialized	-poor in natural resource endowment -inadequate infrastructure, especially transport infrastructure -unsuccessful exports, external demand for exports is low
Territorial Models of Development	Industrial Districts Innovative Milieux Regional Innovation Systems New Industrial Spaces Learning Regions	-unit of analysis is *territory*; a locality, region, country or the whole world - achieved through learning and innovation	-has localised capabilities; sufficient infrastructure and built environment, accessible natural resources, institutional endowment, knowledge and skills that will enhance development	-no or insufficient localised capabilities inadequate infrastructure, remote to natural resources, obstructive institutions, low levels of knowledge creation and skills

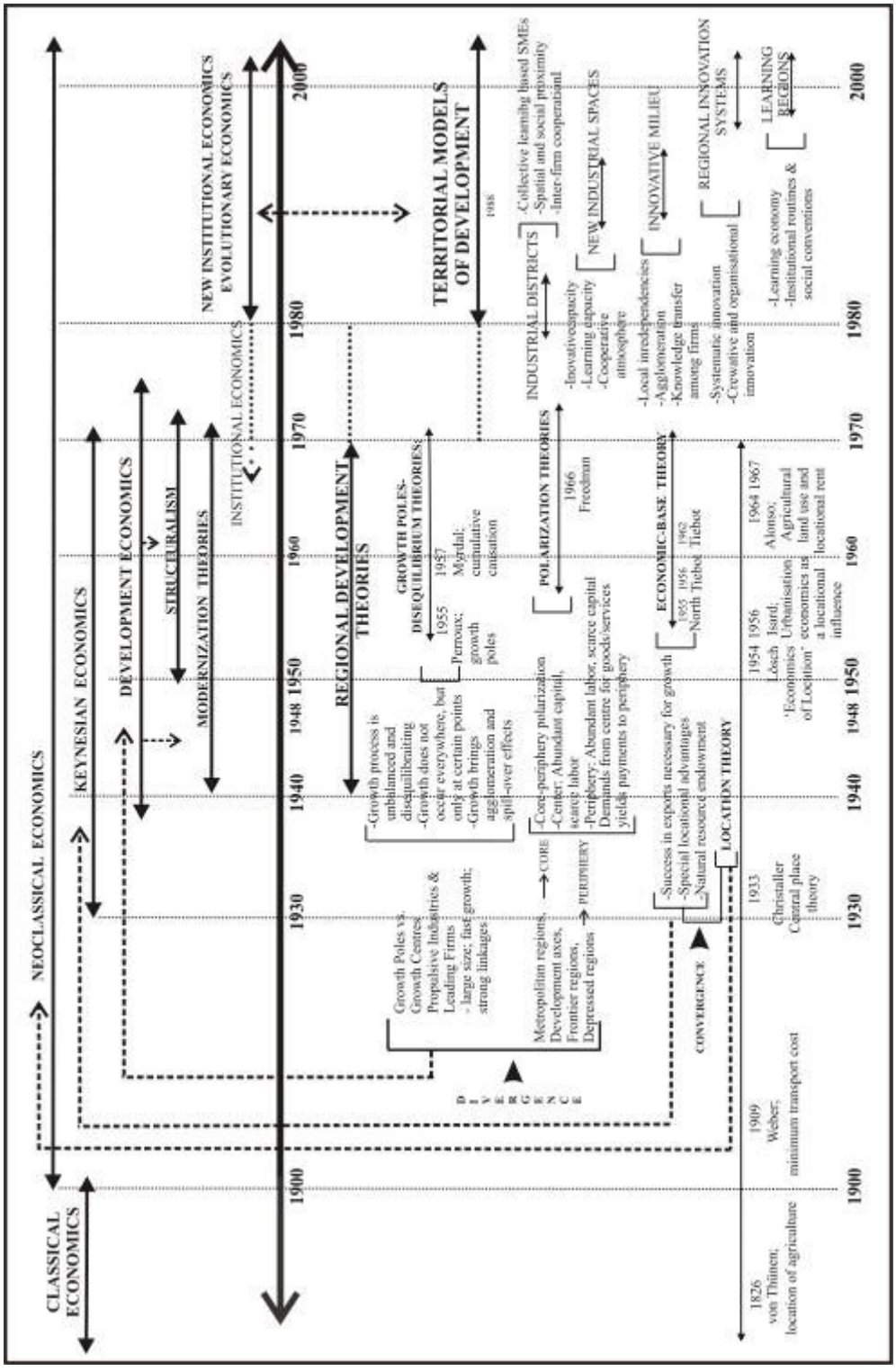


Figure 2.8 Development of the Regional Development Theories in the 20th cc (Source: Author's Own Elaboration)

2.2.1 Traditional Regional Development Theories

Regional development theories are comprised of different theories that come from very different theoretical schools of thought. For example, location theory (Weber, 1929; Lösch, 1938, 1954; Isard, 1966) and its extensions into the studies of regional development take their roots from neoclassical tradition, whereas Export- Base Theory (North, 1955) originates from Keysenian Development Theory. In addition to these, there are Growth Pole (Perroux, 1955) and Polarization Theories of regional development (Friedmann, 1966) which are influenced by Development Economics. Their common point is that they all join the concept of 'space' with development, seeing the latter as a 'dynamic system of spatial relations' (Friedmann, 1966). However, they all differ in how they look into the concept of periphery. Whereas the Location Theory sees the development process as occurring in stages and leading to equilibrium and convergence among regions, Export-Base Theory rejects such a staged development, but agrees with the convergence prediction. On the contrary, according Growth Pole Theory and Polarization Theories, development is an unbalanced process that leads to divergence among regions. So, these latter theories are pessimistic about the future of the periphery.

Regional development theories, in other words, coupling of the concept of space with economic development, can be said to have flourished with the question of where to locate. In progress, this question brought concerns about the social justice in terms of regions. Together with the development of Regional Development Theories, it was understood that justice and equity in terms of regions are by no means less important than those in terms of social classes. These theories first developed with the question of where to locate, and then the question of how disparities occur as a result of location decisions began to be asked.

2.2.1.1 Location Theory – Stage Theory of Regional Development

In the 19th and early 20th centuries, the mainstream of economic analyses into the problems of space was Location Theory itself (Richardson, 1970). Many considerations of Regional Development Theories coincide with that of Location Theory. For this reason, one set of Regional Development Theories is taken here as

those overlap with Location Theory. Very basically, this set of theories concerns convergence among regions and tries to explain the regional disparities with one specific element; transport costs. In addition to that, as it is a neoclassical based theory, Location Theory does not deal with the obstacles the periphery faces in its development process and focuses mainly on the core, which it calls as centres of agglomeration. What will be first discussed within the framework of Location Theory is spatial equilibrium economics; whose main progenitors are Alfred Weber and August Lösch.

According to Weber, transport and labor costs are the key determinants of agglomeration. As labor costs are assumed to be constant in his analyses, transport costs are considered as the main determinant of agglomeration. In other words, as Weber assumed that cost of labor did not vary over space, it is only distance that determines costs of transport, which means only transport costs are the explanatory elements in any location decision. Actually, what Weber tried to do was to describe the rational human behavior. As a result of rational decision making, each individual firm would locate in least cost area and agglomeration would be the logical outcome. Here, the least cost area is determined in terms of only transport costs, as in Weber's analyses, raw-material cost variations are absorbed in transport costs.

What Weber tried to build was a partial rather than a general equilibrium model. Lösch was the one who had taken the step towards formulating a general equilibrium model of regional development (Cooke, 1983). He began to construct his model assuming 'an equal distribution of raw materials, and a complete absence of any other inequalities, either political or geographical' (Lösch, 1963). In each region, 'conditions for perfect competition, technical knowledge and opportunities for market entry are present', and 'each region is isolated from all others and self-sufficient in raw materials' (Cooke, 1983). After making these assumptions, he asked how any spatial differences can possibly arise. In order to answer this, he proceeded trying to show the effects of profit-maximizing market competition on this uniform region. The main idea here is that, a producer who gets profit out of its production of a surplus in this region would first try to maximize the number of local sales, and then expand his market to all directions. As a consequence of Lösch's assumption of

perfect competition, markets cannot overlap and they fill all of the space, in the most advantageous shape, which is a hexagon. By this way, the distance between production locations are minimized, while level of local sales and profits are maximized.

On the other hand, Walter Isard was the one who tried to make a synthesis of Weber's and Lösch's analyses (Cooke, 1983). He sought to show the effects of scale economies on uniform space. According to him, 'the boundaries of the production fields are identified by substitution points determined by transport and labor costs' (Isard, 1966). For him, both transport costs and labor costs explain the agglomeration process. In his further analyses, Isard also tries to show that the center of agglomeration will not necessarily be the minimum-transport cost point, but will be determined by the relative bargaining power of firms. He tries to show how the agglomeration process can be explained with the help of game theory (Isard, 1966).

Location Theory has described a sequence of stages through which regions move in order to develop (Lösch, 1938). This is also called stages theory of regional development, which explains the regional development as a normal sequence of development stages (Hoover, 1949). The first stage is defined as a self-sufficient subsistence economy, in which there is little, or no investment or trade. Population is distributed according to the location of natural resources. At second stage, improvements in transport take place and transport costs are reduced. Through these improvements, trade and local specialization develops in the region. Consequently, a basis of trade is established and income of the region increases. At the third stage, increasing income stimulates the local industry, mainly in the form of village production of very few basic commodities (Stabler, 1968). At the forth stage, industrialization is forced to commence. Additional income of people begins to be invested in manufacturing, rather then agriculture. The dominant type of industry is still characterized as food and raw material processing. At the last stage, the region is specialized in tertiary industries, producing for exports. As can be seen from this sequence of stages, the role transport costs has been critical for regional development according to location theory.

In short, Location Theory deals with the issue of why centers of economies of scale and agglomeration develop and what the factors underlying this development are. It defines development as a typical sequence of stages through which regions move. Transport costs are seen as the key determinants of agglomeration. At the location where the transport costs are minimized, agglomeration of economic activities occurs. Accordingly, core is defined as the part of a nation or a region, which takes advantage of agglomeration economies. At the core, transport infrastructure is highly developed, so that transport costs are reduced and it becomes an attraction point for firms aiming at profit maximization. It is at the last phase of development, thus specialized in tertiary activities and produces for export. Its exports are mainly capital, finished products, skilled personnel and specialized services. On the other hand, the main feature of periphery is that it lacks necessary infrastructure; mainly transport infrastructure. Thus, it is unable to attract capital and moreover, capital flows from it to the core. It imports capital, finished products, skilled personnel and special services from the core.

2.2.1.2. Export-Base Theory

Export-Base theory, or Economic-Base theory of regional development, initiated by Douglass C. North (1955), developed as an alternative approach to stages theory of regional development, but still can be considered as another regional development which studies about what happens at the core, rather then the periphery. North criticized stages theory as being unable to explain the development process in North America. He discussed that the experience of the North American economic development shows little resemblance with what has been described in stages theory. North American economic development, he says, had never been in a stage of subsistence economy, it has rather been an economy based on exports. The development of Pacific Northwest has been through producing exportable commodities. Also, 'many new regions in America developed from the beginning around one or two exportable commodities and widened their export base only after transport costs had been reduced' (North, 1955). Accordingly, he concluded that the determining factor in the rate of growth of regions was the success of their export

base (economic base). For him, in order to understand this growth, one must examine the locational factors that have enabled the staples to develop. In other words, according to Export-Base Theory, the reason why some regions can develop an export base is their locational advantages. To put in a different way, natural resource endowment is seen as very crucial and necessary for development.

According to Export-Base theory of regional development, the growth of regions has tended to be uneven. As the demand for a region's exports increase, this creates a cumulative effect and induces investment not only in export industry, but also in all other kinds of economic activity, and brings further growth.

As a result, the main characteristic of core regions according Export-Base Theory is that they are successful in exports, which means the demand for their exports is high. They have special locational advantages that lower the transfer and processing costs of exportable commodities. On the other hand, the main feature of the periphery is that has unsuccessful exports, which means the external demand for its exports is low. It has inadequate infrastructure facilities; especially transport infrastructure is not adequately developed.

Export-Base Theory predicts that, as the income of a region increases, savings will tend to spill over new kinds of activities and as a consequence, export bases of the region will be more diversified. Together with this tendency, transport costs become less significant and begin to play a relatively minor role in determining the location of agglomerations. Ultimately, this theory expects along with long-run factor mobility, equalization of income per capita, wider dispersion of production and convergence among regions.

2.2.1.3. Growth Poles – Disequilibrium Theories

Growth Pole Theory begins with the following premise; 'Growth does not appear everywhere at the same time; it becomes manifest at points or poles of growth, with variable intensity; it spreads through different channels, with variable terminal effects on the whole of the economy' (Perroux, 1955). The theory proceeds with the argument that the cause of growth at the growth pole is the presence of certain growth industries.

> Sooner than others, they (certain growth industries) become developed in forms that correspond to those of modern-scale industry: the separation of individual factors of production from each other; the concentration of capital under one single power; technical division of labour and mechanization. During certain periods these industries have growth rates for their own products higher than the average growth rate for industrial production and for the product of the national economy…the appearance of one or several (such) industries changes the 'atmosphere' of a period and creates a 'climate' conductive to growth and progress (Perroux, 1955).

Together with Perroux, Myrdal and Hirschman too defend the idea that growth process is necessarily unbalanced. In fact, the latter scholars are development economists, rather then regional development theorists, but they have been very influential in regional development literature. Hirschman argues that 'international and interregional inequality of growth is an inevitable concomitant and condition of growth itself' (Hirschman, 1958). Hirschman sees the emergence of growing points or growth poles as necessary for development process. He puts forward the outcomes of emergence of such a growth pole as *trickling-down* and *polarization effects*. He calls the region which has been experiencing growth 'North', and the one that has remained behind 'South'. According to him, the growth of the former will have direct repercussions, either positive or negative, on the latter. Trickling-down effects are the positive ones, while polarization effects are the negative ones. The most important of these trickling-down effects are the increase of Northern purchases and investments in the South. Another one is the absorption of South's unemployed by the North and thereby the increase of marginal productivity of labour and per capita consumption levels in the South. On the other hand, while the North progresses, comparatively inefficient, but income creating activities of the South cannot compete with those of the North and may become depressed. Also, instead of the absorption of the unemployed of the South by the North, it can be such that the skilled labour of the South can migrate to the North and employed there. These are all the so-called polarization effects. In fact, these two effects corresponds with the before mentioned spread and backwash effects, which was introduced by Myrdal in his disequilibrium theory of growth.

According to Growth Pole Theory, the process of polarization as North and South, or as core and periphery, comes with the economic dominance of one party on the other one. For Perroux, domination is an effect that consists of irreversible influences of one unit on the other (Hansen, 1967). An economic unit exercises such an influence on the other, in other words dominates the other, as a result of its dimension, negotiating power, and the nature of its activity. In practice, such a dominant economic unit comes out as a dominant, or a propulsive firm. This propulsive industry or firm has three characteristics. It is relatively large so that it generates sufficient direct and indirect effects to have a significant impact on the economy. Second, it is a relatively fast growing sector; and third, the quantity and intensity of its relations with other sectors are important so that a large number of induced effects will be transmitted. In fact, what Perroux had meant with certain growth industries, or key or motor industries, is industries that a region must contain in order to become a growth pole.

The so-called domination of the periphery by the core has two complementing components; extraction and distribution. Domination is extractive insofar as it enables the core to gain a net profit from its relations with the dominated periphery. It is distributive so long as the periphery is able to make use of existing forces to promote its own development. To put in a different way, if one characterizes the relation between core and periphery as the domination of the latter by the former, this domination can either be extractive, which corresponds with Hirschman's polarization effects and Myrdal's backwash effects; or distributive, which corresponds with Hirschman's trickling-down and Myrdal's spread effects.

According to Perroux's Growth Pole Theory and other such polarization theories of regional development, the core region is defined as the pole of geographically agglomerated industries and activities. The core is dominant over the periphery. At the core, propulsive industries exist, which are leading industries with relatively new and advanced technology, face rapidly increasing demand, able to create and transmit innovation. In fact, the main characteristic of the core, or rather the main indicator of being a core region is the existence of large scale investments. On the other hand, according to this set of theories, periphery is defined as the region that lacks

propulsive, large scale industries and social overhead capital. It is dependent on the core, in other words on the geographically agglomerated poles, and functions as the hinterland of it.

Growth Pole Theory has many policy implications. Until the end of 1960s, and beginning of 1970s, many governments tried to establish such growth poles in less developed regions, in order to reduce regional disparities. However, these experiences of different countries cannot be counted as successful ones. In other words, the implementations of policy implications of Growth Pole Theory did not prove success. For this reason, the tendency of creating growth poles in less developed regions of a country began to be abolished in 1970s.

2.2.1.4 Polarization Theories

Theoreticians dealing with the issue of regional development were not only concerned with the distances separating points in space, but with the internal structure of these spatial points (Richardson, 1973). Freedmann's core-periphery model and related theories that focus on the role of cities in regional development can be said to deal mainly with these internal structures. 'This focus on cities is justified by the fact that modern economic development has occurred chiefly in an urban-industrial matrix' (Friedmann, 1966). In these set of theories, 'attention has been given to the effects of concentration in space upon the rate and the manner of economic growth and the corresponding social functions and organization'(Friedmann, 1966).

To be more precise, city growth is the main force behind the regional development, for the fact that the growth of the city cannot be contained; the urban influence spreads as more varied and expanded food supply is needed. Freedmann summarized this theory of regional development in a set of propositions. First, he defined the regional economies as open to the outside world and subject to external influence. Accordingly, regional economic growth was externally induced. He proceeded arguing that the successful translation of export sector growth into growth of the residentiary sector depended on the socio-political structure of the region and the local distribution of income and patterns of expenditure. He pointed out that local

political leadership was decisive for successful adaptation to external change. He also regarded the regional economic growth as a problem in the location of firms. He further emphasized that, economic growth tended to occur in the matrix of urban regions and the space economy was organized around this matrix. Moreover, flows of labor tended to exert an equilibrating force on the economy. In saying so, he also accepted the possibility of contradictory results. And finally, he stressed that, where economic growth was sustained over long periods, it worked toward a progressive integration of the space economy (Friedmann, 1966).

However, the above mentioned process occurs at locations of economic growth. The remainder of the country becomes relegated to a peripheral position. A cumulative and sustained growth takes place at the core and at the same time capital, labor, and resources flow out of the periphery to the core. As a result, Freedman supposed that initially, income differences between core and periphery tended to widen.

In addition to that, in this theory, there is a four-fold classification of development areas, rather then the core-periphery dichotomy. According to Friedman and Alonso (1964), areas can be classified as metropolitan regions, development axes, frontier regions and depressed regions. Here, metropolitan regions and depressed regions represent core and periphery. The former is defined as the large urban centers of industry, commerce and administration that, together with their immediate region of influence, have high potentials for further economic expansion. New ideas, technology, capital are all developed at the core. Depressed regions, on the other hand, tend to consist of areas of declining or stagnant economy, in other words lagging regions. They lack economic autonomy and are dependent on core regions. However, Friedmann and Alonso (1964) argued that, at later stages, as spatial integration and economic progress continued and reached to a level; the growth would tend to diffuse as a result of migration, new investments in the periphery, expansion of market, improvements in communications, and changes in attitudes. Finally, it was supposed by this model that, the disparities between core and peripheral regions would begin to narrow.

2.2.2 New Generation Regional Development Theories-Territorial Models of Development

Territorial models of development, namely *industrial districts*, *innovative milieux*, *regional innovation systems*, *new industrial spaces*, and finally *learning regions* model which constitutes the synthesis of the first four models (Eraydın, 2002,2003), try to define the core regions as having some specific capabilities or competencies such as innovativeness, ability of knowledge creation and recreation, learning capacity and suitable institutional endowment. In doing this, they focus on the processes which create a knowledge base that is considered to be essential to the sustainability of the local economic development (Longhi, 1998). In this respect, regions that do not have such knowledge base and skills, which will facilitate innovation and continuous learning, are accepted as peripheral ones.

It is now commonly agreed that the forms of production organization which characterized the most dynamic industries of the port-war period, namely the mass production in the consumer durables sector and their associated capital goods, are no more as central to economic growth (Storper, 1993). Since 1970s, the post-war mass production economy is being replaced by greater flexibility and specialization, parallel to a continuous technological change (Storper, 1997, p.6). The purpose of the firms is no longer only cost-reduction. They rather put forth their effort to be able to innovate in the production process, to access new and distinctive markets, to produce new, improved or redesigned goods or services (Maskell and Malmberg, 1999). In other words, in contemporary era, innovation and knowledge creation are the main goals of any firm who aims at competitiveness. In addition to that, it is widely accepted that, such an innovation is an interactive process (Morgan, 1997), and it is mainly at the local level that a firm's ability to create knowledge and innovate will enable it to realize this interaction with related firms in a process of collective learning (Maskell and Malmberg, 1999). Parallel to these changes, the 'region' is tried to be redefined. The region is now 'the center of 'post-Fordist', 'flexible', 'learning-based' production systems' (Storper, 1997, p.4). Accordingly, what determines the development level of a region has changed. Present level of income no more secures the future development of a region. Now, regions have to present a

suitable environment for their actors, so that these actors can interact, create new knowledge and share it among themselves, learn from each other and from the outside world, and thus innovate.

Territorial Models of Development emphasize this new understanding of regions and localities, and focus on the capabilities they have in the process of development. However, these capabilities, which Maskell and Malmberg call *local capabilities* (1999), are different from what had been mentioned as the determinants of development in pre-1980s. According the Maskell and Malmberg, these capabilities are; the region's infrastructure and built environment, the natural resources accessible in the region, the region's specific institutional endowment, and finally the knowledge and skills available in the region. While first two of these capabilities have been generally accepted, the last two of them belong to a new line of thought. As mentioned in the last chapter, the institutional endowment is proposed as a capability by institutional economics and its newer versions. The last one, knowledge and skills available in the region are strongly emphasized in territorial models of development.

Industrial districts originate with Bagnasco in 1977 and stresses the innovative capacity of SME's belonging to same industry and local space (Moulaert and Sekia, 1999). An industrial district is defined as a geographically localized productive system, based on a strong local division of work between small firms specialized in different steps in the production and distribution cycle of an industrial sector, a dominant activity, or a limited number of activities. In an industrial district, there is a technological dynamism depending on the balance of co-operation and competition between firms (Lawson and Lorenz, 1998). Through such relationships within the industrial district and those that are established between the district and the outside market, tacit knowledge is transmitted. This transmission is facilitated by trust and reciprocity (Eraydın, 2002, 2003). Italian industrial clusters, where very small firms (hundreds or even thousands of firms, whose size averages ten employees or less, depending of the firm and the locality) are clustered (Storper, 1993), are significant examples.

In *new industrial spaces* literature, the way actors interact and participate is emphasized. In other words, it focuses on local interdependencies and knowledge transfer among firms (Eraydın, 2002, 2003). In this respect, new industrial spaces are organized as production networks, in which *conventions* are of great importance (Storper, 1993). These 'conventions are practices, routines, agreements and their associated informal and institutional forms'. By binding economic actors together and coordinating their actions, they facilitate the knowledge transfer among and within firms. In addition to that, in new industrial spaces, research and development (R&D) and institutions that create externalities are of great importance (Eraydın, 2002, 2003).

Regional innovation systems developed following the debate on national innovation systems. In regional innovation systems literature, the institutional basis of learning is emphasized. Here, innovation is not only a technological, but an organizational process as well (Moulaert and Sekia, 1999). In a regional innovation system, there is 'a combination of a well endowed organizational infrastructure and an associative superstructure composed of an embedded civil society capable of activating social capital' (Cooke, Uranga and Etxebarria, 1997). These regional innovation systems are also inclusive at organizational level and networking is of major importance. Representation of non-public or public agencies (universities, research institutes, technology transfer agencies, etc.) that come out of the responsible administration is strongly emphasized and found to be necessary.

In *innovative milieux literature,* the firm is considered as a part of a milieu, rather then an isolated agent (Moulaert and Sekia, 1999). Innovative capacity of agents in a milieu depends on their capacity of learning and the latter is maintained through relationships with other agents within a 'co-operative atmosphere' (Eraydın, 2002, 2003). In an innovative milieu, *collective learning* (Capello, 1999) is critical. He argues that firms in a milieu are engaged in a process in which available information is transformed into useable knowledge, so that uncertainties are eliminated.

Learning regions model constitutes an integration of the above explained models of territorial development. Very basically, learning region model comes out of the

convergence of two distinct fields of study; innovation studies and economic geography (Morgan, 1997). In other words, learning regions model is developed as an endeavor, as Morgan (1997) states, to 'connect the come of the concepts of the network paradigm –like interactive innovation and social capital- to the problems of regional development in Europe'. Parallel to this, he first proposes that innovation is not a linear, but an interactive process, and second he argues that innovation is shaped by a variety of institutional routines and social conventions, which may help to regulate economic life, by reducing uncertainties. Morgan further continues that these two propositions bring forth the debate on capitalism as a learning economy. Consequently, the learning region literature comes out as a mixture of debates on evolutionary economics and innovation studies, and regional development studies. Accordingly, a learning region can be characterized as innovative through making use of its rich social capital, in an institutionally well-endowed environment.

In fact, not only learning regions model, but all four of 'territorial models of development are strongly influenced by the issues raised in institutional and Evolutionary Economics and the neo-Schumpeterian perspective on the role of innovation and technology' (Eraydın, 2002, 2003). All these models see knowledge as the most important input and also the output of the new era. They all agree upon the differentiation as tacit or non-codified knowledge and codified knowledge, or procedural and declarative knowledge (Nooteboom, 1999) and that tacit knowledge and its transmission is critical for territorial development, for it is embodied in the heads and hands of the people, in teams, in organizational and structural procedures, and organizational culture and thus, difficult to imitate. Very importantly, it is also generally accepted that tacit knowledge can only be transmitted in cultural and spatial proximity. In other words, there occurs a shared knowledge as result of such proximity, and this shared knowledge, which is tacit in nature, help the members of the locality or organization communicate with one another and coordinate their actions (Lawson and Lorenz, 1998). To put differently, tacit knowledge is seen as the most crucial asset in getting competitive advantage, due to the fact that acquisition of tacit knowledge that is rooted in relations of proximity is difficult, whereas codified knowledge is becoming more ubiquitously available (Amin and Cohendet, 1999).

In summary, Territorial Models of Development consider innovation, knowledge creation and consequent technological change as the main force behind economic development. For this reason, according to these theories, capabilities of innovation, knowledge creation and rapid technological change are determinants of being a core region. In this respect, regions that cannot innovate and learn, and that do not have a suitable institutional environment are the peripheral ones. In addition to that, these theories, dealing with questions such as how regions can innovate, what are the suitable conditions for knowledge creation, what kind of an institutional environment is necessary to be innovative etc., direct their point of attention to the processes that occur at core and cannot be realized by the periphery. Although they are useful in the sense that they provide a good deal of information about the ways competitiveness is derived in the new era, they do not say anything about how peripheral regions can tackle with the problems of backwardness. However, by not remaining fixed mainly on income and income related determinants of growth and development, they make an important contribution to the theorizing of these processes. To be more precise, together with Endogenous Growth Theory and Institutional Economics, they introduce and strongly emphasize new determinants of being a core or a peripheral region, such as human capital, stock of knowledge and skills, and institutional endowment. By this way, they are quite enlightening in the formation of a new understanding of periphery.

2.3 Towards Conceptualization of the Theoretical Discussions on the Periphery

In the previous two chapters, economic growth and development theories together with regional development theories are reviewed with a view to their considerations on the periphery. It is clear that, none of these theories make explicit definitions of the periphery; their explanations regarding peripheality are rather implicit. However, they emphasize different, at times related or similar concepts regarding economic growth and development, from which different definitions of the periphery can be derived out and more concrete explanations regarding peripherality can be made. In this section, the aim is to put forward the main concepts of each theory in order to

identify those which are most helpful in defining the periphery. Table 2.3 summarizes the main concepts of each theory.

Table 2.3 Main Concepts of Economic Growth, Development and Regional Development Theories (Source: Author's Own Elaboration)

THEORY		CONCEPTS
Neoclassical Growth Theory		Income , income growth
Endogenous Growth Theory		Human capital, social capital, physical capital, innovative capacity
Development Economics		Income, sectoral structure of the economy, population, employment, welfare
Neo-Marxist Economics		Income, economic structure, employment, dependence
Institutional Economics		Institutional thickness, employment, population, education
Regional Development Theories	Location Theory	Income, economic growth, transportation
	Growth Poles	Income, agglomeration, economic structure
	Polarization Theories	Income, urbanization, economic structure, infrastructure
	Export-base Theory	Exports, economic structure
Territorial Models of Develop-ment	Industrial Districts	Physical resources/infrastructure, geographical proximity, social and organisational proximity
	Innovative Milieux	Collective learning, product/process innovation, organisational innovation
	Learning Regions	Innovative capacity (tacit knowledge and codified knowledge accumulation), learning capacity, localised capabilities (human capital, physical capital, institutional endowment)

Until 1980s, peripherality has been tried to be explained mainly with income differentials, namely with income per capita and economic growth. In other words, the conventional explanations of peripheral disadvantage stressed mainly income differentials as the main factor behind the backwardness of the periphery against the core. Neoclassical Growth Theory has been the theoretical background of this explanation that is based on income differentials. 'At its most simple, Neoclassical Growth Theory assumes that regions tend to the same equilibrium growth path for capital and output per worker' (Fingleton, 2003). To put it in a different way, it assumes that all economies will end up with a 'steady-state' rate of economic growth, in which the growth rate of capital, the growth rate of labour force and the growth rate of output will be the same. The idea behind this assumption is the consideration of technology as exogenously given and equally available to all regions and countries. By not taking the technological progress as a costly process, but exogenously given, it foresees convergence among the incomes of countries.

To be more precise, Neoclassical Growth Theory argues that, 'if countries are similar with respect to structural parameters for preferences and technology, then poor countries tend to grow faster then rich ones' (Barro, 1991). The main force behind this income convergence is seen as diminishing returns to capital, that is, poor countries which have low initial capital-labour ratio have high marginal products of capital. As a result, they grow faster than rich countries, which have higher initial capital-labour ratios and therefore lower marginal products of capita. In this regard, Neoclassical Growth Theory considers the initial levels of per capita product and therefore, income and its growth, as the only determining factor in growth process, for it takes the technological progress as exogenously given and equally available for all economies.

Endogenous Growth Theory, on the other hand, rejects the convergence argument of the Neoclassical Growth Theory and foresees divergence among per capita incomes of regions. First, it takes rate of growth of per capita product as independent of the starting level of per capita product, but dependent on the technological development which is a costly process that cannot be achieved by all regions in equal conditions. This point of Endogenous Growth Theory brings an important variable into regional

development analysis and to any effort for understanding and defining the periphery. This new variable is human capital. In other words, whereas Neoclassical Growth Theory explains economic development only with income and income growth, Endogenous Growth Theory introduces human capital as an important factor in economic growth. From then on, peripherality began to be analyzed taking into account this important human capital variable, which is seen as the key input to the research sector that generates the new products or ideas that underlie technological progress (Romer, 1990). In addition to human capital, social capital comes out as an important factor of a region's economic performance in Endogenous Growth Theory, for it gives high importance to endogenous potentials of a region. Bourdieu defines social capital as 'the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition' (Bourdieu, 1986, p.248).

According to Endogenous Growth Theory, physical capital is also considered as an important input in economic growth. This may be considered as a common point at which Neoclassical and Endogenous Growth Theories meet. Here, physical capital refers mainly to investments, savings and capital formation in an economy. These may be measured using indicators like investment per person, investment per capita in manufacturing and knowledge intensive sectors, gross fixed capital formation and gross valued added produced in different sectors. In addition to these three types of capital, that are, human, social and physical capital, there is also emphasis on innovative capacity of a region. Innovative capacity, which here refers to research and development facilities, innovation activities and investment in knowledge, is considered as an important factor in economic growth, for, the endogenous potentials of a region cannot be utilized for the further technological growth in its absence.

To sum up, in Endogenous Growth Theory, three main types of capital; human capital, social capital and physical capital, and innovative capacity are the four assets that are put forward as most necessary for a region's economic growth. Among these concepts, innovative capacity and human capital stand out as most important for their strong emphasis in Endogenous Growth Theory can be considered as one of the main

shifts from defining the periphery purely with income variables, and for they are easy to be quantified when compared especially to social capital.

The theoretical discussions made within Development Economics constitute the other important shift from defining the periphery mainly with income differentials. As explained before, Development Economics tries to explain why nations posses very different income per capita and different standards of living and, what kind of policy measures and programmes can be followed for this. In this respect, it sees the gross national product (GNP) measures inadequate to show the development level of a country. According to this body of thought, although GNP figures give an idea about the living conditions of people, there are many other variables that also influence the living conditions, and the concept of development cannot ignore the role of these other variables.

One of the most important concepts that is emphasized in Development Economics is sectoral structure of the economy, that is sectoral composition of gross domestic product (GDP) and/or gross value added (GVA). In this respect, economies with high share in high value-added non-agricultural sectors tend to be more developed, whereas those with high share in agriculture tend to be more underdeveloped and traditional. Rostow express this as such when describing underdeveloped, traditional society which is at its first stages of development: 'We start with a stable and traditional society containing an economy mainly agricultural, using more or less unchanging production methods, saving and investing productively little more than is required to meet depreciation' and continues to describe the development process parallel to the appearance of modern manufacturing enterprises (Rostow, 1960).

Population figures are also very important in development in Development Economics' point of view. These figures might be counted under headings such as population density and change, birth rates, migration, age structure of the population, and economic activity rates. Regions or countries that have high population growth rates and birth rates, high percentage of young population, low economic activity rates are considered as relatively underdeveloped. Together with population, employment structure of the economy also gains importance. Employment rates,

sectoral composition of the employment which also reflects the sectoral composition of the economy, and unemployment are thought as of critical value in describing the level of development of an economy. In this respect, economies with low employment rates, low economic activity, and high percentage of labour in agricultural sector, are considered as underdeveloped.

Welfare conditions are also emphasized in Development Econmics. In this respect, education and health stand out as crucial, for they give a clear picture of the level of development of the society. In addition to these, income levels and poverty are crucial issues for Development Economics, for it says much about the living standards of a society, which actually Development Economics concentrates on and tries to understand reasons to find the means to cope with it. Actually, issues like cultural and historical background of a society are also of great importance in this body of thought; however these concepts are not measurable.

Neo-Marxist Economics has much in common with Development Economics. First of all, sectoral composition of the economy and employment are considered as characteristic for an economy like in Development Economics. Amin mentions this while comparing the core and the periphery, by arguing that core has powerful economic forces that diffuse the benefits of progress throughout the economy, in the periphery, the distribution, as between sectors, of the working population and of production, is extremely divergent (Amin, 1974).

In addition to these, there is a clear stress on trade between core and periphery in Neo-Marxist Economics, for it concerns dependency of the latter on the former. Again Amin (1974) explains this dependence as occurring in the plane of external trade, in two manners. First, the exports of the periphery are made up of primary products and its imports are made up of manufactured goods. Second, the external trade in a peripheral economy is being essentially made with the outside world, although the trade in the core is mainly done within the core. However, this primary goods-manufactured goods differentiation does not fit to the conditions of the contemporary era, for now knowledge as a good is considered as characterising in the success of economies.

As a result, Neo-Marxist Economics considers exports, sectoral structure of the economy, employment and to some extent income as important in explaining economic development. However, in this body of thought, there is a lack of concern on endogenous factors of development inherent to a country or a region like the educational attainment of its labour force, and social capital.

Institutional Economics, on the other hand, can be considered as eclectic in its efforts to explain economic development. It is mostly influenced by Development Economics in this context. However, by seeing the development as an institutional process, it lays stress on institutional endowment of a society as characteristic in its development. In this respect, Institutional Economists argues that the institutions and institutional ties in a society may become either obstructive or constructive in a region's economic development. They also consider trust and reciprocity as requirements for the establishment of social networks that will enable diffusion of new ideas and working practices. To be more procise, institutional economics argues that institutional thickness is a precondition for successful regional development.

In addition to economic growth and development theories, Regional Development Theories also introduce new concepts and implicitly define the periphery in a different way. They are comprised of different theories that come from different theoretical schools of thought. For example, Location Theory takes its roots from neoclassical tradition, whereas economic base theory originates from Keysenian Development Theory. In addition to these, disequilibrium, in other words the theory of Growth Poles and Polarization Theories of regional development are influenced by Development Economics. The concepts each of these theories emphasize do not differ much from the theories from which they originate, except for the additional concepts regarding space.

For example, Location Theory emphasizes income and income growth like Neoclassical Growth Theory, and transport costs as the main concepts of regional development. Growth Poles and Polarization Theories, on the other hand, like Development Economics, emphasize income and economic structure when characterizing the periphery. However, the former introduces the concept of

agglomeration additionally. According to Growth Poles Theory, growth occurs at certain locations where large scale investments agglomerate. The latter introduces the concept of urbanization in addition to emphasizing income and economic structure. In these theories, the polarization between urban and the rural areas are used in defining peripherality, and regional growth is considered as an outcome of urban growth. Actually, these regional development theories, by introducing externalities come out of accessibility, agglomeration and urbanization as crucial factors in regional development, constitute the conventional explanations of peripherality. However, they all neglect the role of knowledge accumulation in regional development and the conditions for it inherent in a region.

Territorial Models of Development, on the other hand, are strongly influenced by Institutional and Evolutionary economics and the Neo-Schumpeterian perspective on the role of technology and innovation (Eraydın, 2003). Although they all mainly concentrate on local externalities of learning and innovation, they have slightly different points of emphasis.

As mentioned in the second chapter, in Industrial Districts literature, production that is based on small firms specialized in different stages is emphasized. In order for such a production to be carried on there is need for spatial, and social and institutional proximity through which firms can operate in cooperation, trust and reciprocity. In this literature emphasis is laid on small SMEs which are supposed to operate in greater flexibility and adaptability to changing conditions of the world. In addition to all these, local resources of these districts like infrastructure and investments are considered to play a key role in their development. In short, the main concepts that come out as important in this Industrial Districts literature are physical resources and infrastructure, geographical proximity, and social and organisational proximity. In the literature regarding Innovative Milieu, on the other hand, collective learning is of great importance. Here collective learning comes out of interaction among agents that goes parallel with spatial transmission of knowledge. As a result of collective learning, innovation occurs in forms of product and process innovation, together with organizational and institutional innovation. While product and process innovation correspond to research and development activities and patenting,

organizational and institutional innovation refer to firms innovating through sharing ideas, building common values and norms, namely networking with other firms, universities and other social institutions. Lastly, the Learning Regions Model constitutes a more advanced and updated synthesis of these two models. In this model, physical resources or infrastructure and institutional endowment of Industrial Districts Model are coupled with collective learning and innovativeness concepts of Innovative Milieu Model. Additionally, more emphasize is laid on endogenous dynamics that come out in the form of learning capacity and human resources. Here, the former refers to the willingness and readiness of the society to learn, that is socially and culturally embedded in it. In short, the concepts of emphasis of Learning Regions Model can be summarized as knowledge accumulation, learning capacity, and localized capabilities. Here, knowledge accumulation is considered as occurring in two forms; codified knowledge accumulation and tacit knowledge accumulation. Regional Innovation Systems and New Industrial Spaces, on the other hand, have very similar points of emphasis with Learning Regions and Innovative Milieux Models.

2.4 Concluding Remarks

Conceptualization of the basic discussions on the periphery provides us with various different concepts. In this concluding section, different definitions of the periphery are tried to be identified based on these concepts or combinations of concepts as they are not totally independent from each other. Figure 2.9 summarizes the concepts mentioned in the above section, their theoretical roots and interrelations between them.

Neoclassical Growth Theory emphasizes only income and income growth in its implicit explanations regarding the periphery. However, by the rise of Development Economics, not only income variables emphasized by Neoclassical Growth Theory and accessibility considered as of crucial importance by Location Theory, but also social aspects of development like economic structure, employment and population together with welfare began to be used in explaining underdevelopment of the periphery. This shift is also evident in the development of the regional development

theories. Unlike Location Theory, Polarization Theories and Growth Pole Theory of regional development, which are influenced by Development Economics, do not focus merely on transport costs in theorizing regional development, but on more social aspects like employment, population as well. They further emphasize on externalities came out of agglomeration and urbanization processes which effect the growth process of a region.

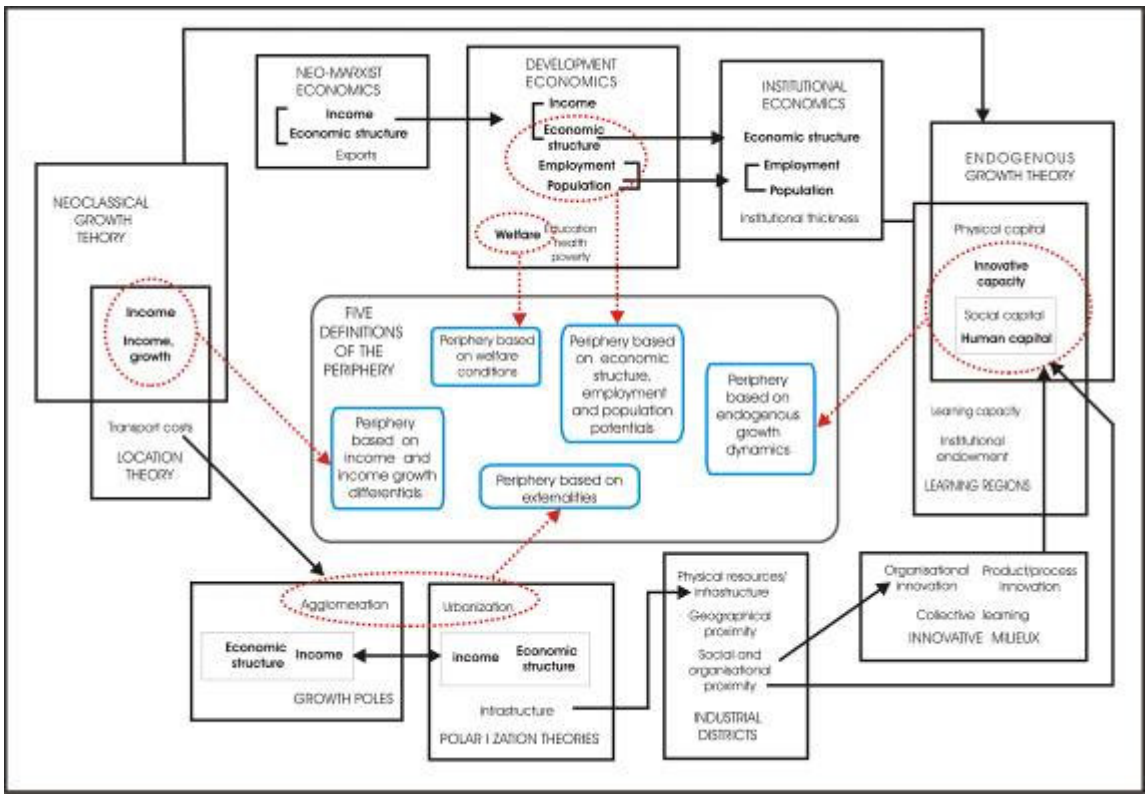


Figure 2.9 Main Concepts Emphasized by Different Theories and their Interrelations (Source: Author's Own Elaboration)

Another shift in understanding the periphery came with the rise of Endogenous Growth Theory. As new forms of economic activity, that are dependent on the skills and the adaptability to changing conditions of the labour force and the entrepreneurs, began to emerge, the conventional explanation of the peripherality made by using mainly income variables have been altered. Now, human capital and social capital,

together with innovative capacity, in other words endogenous growth dynamics, which are emphasized by Endogenous Growth Theory and later by Territorial Models of Development, are considered as preconditions of successful regional development. Neo-Marxist Economics and Institutional Economics does not provide much insight into the analysis of the change in the definition of the periphery. One reason for this is the similarity of the concepts emphasized by these discourses to the above mentioned four discourses. These similarities can be followed again in Figure 2.9. For example, although it searches the solution of the problem underdevelopment out of the current capitalist systems, Neo-Marxist Economics emphasizes almost the same concepts with development economics in its discussions regarding the periphery. They both consider employment, population, and economic structure in identifying whether a region is peripheral or not. Same is true for Institutional Economics. It suggests that development is a social and institutional process, and criticises the other theoretical discussions on economic growth and development arguing that they do not give enough importance to the institutional nature of the development. However, the concepts that they put forward as important while theorizing economic development is not much different then of the Development Economics. It additionally emphasized institutional endowment of regions as a precondition of successful regional development. However, this concept is also strongly emphasized by Territorial Models of Development, especially the Learning Regions Model.

As a result, five different groups of concepts are derived; income and income growth differentials based on Neoclassical Growth Theory; externalities come out of agglomeration and urbanization emphasized by Traditional Regional Development Theories; economic structure, employment and population potentials based mainly on Development Economics; welfare indicators based again on Development Economics, and lastly, concepts of endogenous growth dynamics based on Endogenous Growth Theory and Territorial Models of Development.

By using each of these groups of concepts, five different definitions of the periphery can be made. These definitions and their hypothesis regarding being a core or peripheral regions are explained below;

1. Definition of the periphery by using income and income growth differentials: Initial income levels of a region determine whether it is a core or a peripheral region. In this respect, regions with high income per inhabitant are core, whereas those with low income per inhabitant are peripheral regions. They further differentiate into dynamic, less dynamic and stagnant according to their income growth rates.

2. Definition of the periphery based on externalities: Existence of externalities determines whether a region is a core or a peripheral one. Regions where agglomeration and urbanization processes that give rise to positive externalities, occur, are core regions. On the other hand, regions where such externalities are not available are peripheral.

3. Definition of the periphery based on economic structure, employment and population potentials: Being a core or a peripheral region depends on the economic structure, employment and population features of the region. Regions specialized in non-agricultural sectors with high vale-added, and those that have high employment and population potentials are core regions, whereas regions reliant on agriculture, that have low population potential and/or low utilization of high population potential that corresponds to low employment levels are peripheral regions.

4. Definition of the periphery based on welfare conditions: Welfare conditions determine whether a region is a core or a peripheral one. Regions with developed welfare facilities are core, those with underdeveloped welfare facilities are peripheral regions.

5. Definition of the periphery based on endogenous growth dynamics: Endogenous sources of growth like human capital, social capital and innovative capacity determines whether a region is a core or a peripheral one. Regions with high levels of human and social capital and that are innovative are core, whereas regions with low levels of human capital and that are not innovative are peripheral.

CHAPTER 3

DEFINING PERIPHERY IN DIFFERENT STUDIES

There is a huge empirical literature on European regions and the European periphery. However, the amount of empirical literature which aims at understanding how the definition of the periphery and the characterization of different peripheries evolved in time is not very high. Nevertheless, there are still some important empirical studies that lay stress on the periphery, characterize different peripheries, or at least end up with differentiating a variety of peripheries while trying to analyse the overall European periphery. In this chapter, the aim is to overview the findings of these empirical studies.

Throughout EU's history, there have been clear differences among the economic performances of the regions. For example, while most of the objective1 regions (regions where the GDP per head is at or below 75% of the Community average) of Spain, Portugal and especially Ireland grew faster then community average, those in Greece, Ceuta y Malilla in Spain, and half of the Italian objective1 regions and Northern Ireland in UK were subject to a decline in GDP per inhabitant relative to Community average (Hall and van der Wee, 1995). And, it has become the task of researchers to underlie the reasons behind the differences in economic performances of the regions. In other words, probably the largest group of empirical studies on European periphery emphasized income and income growth differentials, and differentials in the formation of physical capital and tried to analyse the regional growth patterns in Europe while trying to find out whether there is convergence or divergence in terms of mainly income.

Another group of studies emphasized on economic structure, employment and population potentials and aimed to analyse the European periphery from the perspective of such socio-economic concepts. Differentials among European regions in terms of endogenous growth dynamics, on the other hand, are emphasized to a lesser extent in empirical studies, although there is a huge literature on endogenous sources of growth. However, this kind of an emphasis can be observed in the empirical studies made within the framework of Aspire Project which is European research project funded by the EU Fifth Framework Programme.

There are also important empirical studies which do not try to analyse the disparities among European regions, but try to understand the impact of integration on peripheral areas. Although they are not directly related to the task of the thesis, it is necessary to make a short review of them in order to have an idea about the opportunities and threads which the European periphery faces.

3.1 Empirical Findings on Income and Income Growth Differnetials in the EU

Empirical studies on income and income growth differentials in the EU are mainly carried out for the purpose of convergence analysis. The empirical convergence analysis has become increasingly popular in recent decades, influenced by the contrasting predictions of Neoclassical and Endogenous Growth Theories (López-Bazo, 2003). As a result, there is a huge literature about the question of whether there has been a process of convergence, namely the catching up of the periphery with the core, or divergence which results in the further backwardness of the periphery, although there is no consensus on which process prevails and to what extent. Some of these empirical studies are engaged not only in identifying the presence of an overall convergence or divergence, but in examining different growth patterns across the European periphery as well. In other words, they examine the process of convergence as a spatial phenomenon, concentrate on interregional disparities, and give us clues about the existence of different peripheries, or, either directly or indirectly define the periphery using different variables.

One important study in this group is that of López-Bazo (2003). Using the stochastic kernel as the data analysis method, he analysed convergence in product per capita and labour productivity, in a wide set of EU regions, over the period 1975-1996. He finds out first, that the distribution of GDP per capita and GDP per worker seems to have been less dispersed in 1996 than in 1975, so there has been a convergence process. Second, he finds out that this convergence has been more intense in labour productivity than in terms of product per inhabitant. Also, he analyzes to what extent these features can be explained by geographical factors. For this, he compares the actual distribution of GDP per inhabitant and per worker with some virtual ones that are the distributions which are obtained when conditioning to membership of a given state, neighbourhood effects, population dynamics, market potential, and sectoral composition. At the end of the comparison, he finds out that virtual distribution conditioned to membership of a given state, neighbourhood effects and market potential differs greatly from the real distribution. So, he concludes that geographical location and accessibility to markets, which shows peripherality, are of great importance in explaining regional disparities.

Another empirical study that studies the different regional growth patterns in Europe is that of Rodríguez-Pose (1998). In his study, he groups the European regions according to their growth rates. To be more precise, he tries to form a regional typology emerging from the analysis of nationally weighted regional growth rates in the period 1980-1991, versus nationally weighted regional GDP per-capita in 1980. As a result of this analysis, he acquires six different regions. One group of regions that comes out of this analysis is capital and large urban regions, which are Athens, Berlin, Brussels, Copenhagen, Hamburg, Paris, Lazio, Lisbon, the Tagus Valley, Madrid, the south-east of England, and the western Netherlands. These regions, with the exception of Berlin and Athens, have achieved above average growth rates. They completed the industrial restructuring and developed a powerful decision-making sector. So, they have become decisional centres which control the socio-political and economic activities that take place distant and even remote locations. They also have a greater social dynamism, high quality labour and a high level of technological advances. Another group of regions are former core regions undergoing industrial

decline. These are the North and the North-west of England, Yorkshire and Humberside, and Wales in Great Britain; the Saar Region, North-Rhine Westphalia, Lower Saxony, and Bremen in Germany; Wallonia in Belgium, Nord-Pas de Calais, Picardy, Champagne-Ardennes, Lorraine, Upper and Lower Normandy in France; Asturias, Cantabria, and the Basque Country in Spain, Liguria and Piedmont in Italy; and the Northern Netherlands. In these regions, 'the shift from mass production to more flexible methods rendered the large industrial sites obsolete and unable to compete in a wider and more open market' (Rodríguez-Pose, 1998). As a result, they have been subject to serious economic recessions and low growth rates. The next group of regions is intermediate dynamic regions, which the author defines as the chief beneficiaries of socio-economic restructuring. These are Flanders in Belgium; the west of the Great Belt in Denmark; Baden-Württemberg and Bavaria in Germany; Aragon, Catalonia, Valencia, and the Balearic Islands in Spain; Midi-Pyrénées and Aquitaine in France; Valle d'Aosta, Lombardy, Veneto, Trantino-Alto Adige, and Friuli-Venezia Giulia in Italy, the South and the East of the Netherlands; and the East Midlands, East Anglia, the South-West of England, and Scotland in Great Britain. These regions have financial and human resources, and necessary technological and organisational know-how to create or resurrect the local SMEs. They also showed rising rates of growth in 1980s. The other group of regions are intermediate less dynamic regions. These are the ones which 'were left aside new processes or lacked the adequate economic, social and/or political conditions to attract investment and technology…'. They are characterized by relative isolation, poor access to major markets, insufficient industrial network, and below-average levels of education. Schleswig-Holstein and Rhineland-Palatinate in Germany; the Centre, Burgundy, Franche-Comté, Britanny, Pays de la Loire, Poitou-Charantes, Limousin, and Auvergne in France, Umbria and the Marche in Italy; the east of the Great belt in Denmark; and Navarre and Rioja in Spain belong to this group. Also, these regions generally show growth rates fairly close to EU average. The next group is the peripheral dynamic regions. This group has two sub-groups. The first consists of Abruzzi, Molise, Puglia in Italy; the North of Portugal, the north of Greece, Murcia in Spain. Their common characteristics are being capable of offering

conditions and skills highly demanded by the global market or have specialized in highly performing sectors, mainly tourism. The second sub-group consists of the tourist resorts of Madeira in Portugal, the Canary Islands in Spain, Sardinia in Italy, and the Greek Islands. The regions in both of the sub-groups grow above the European average. The last group of regions is peripheral less dynamic regions. These are Campania, Basilicata, Calabria, and Sicily in Italy; Northern Irland; Central Greece and the Peloponnese; Galicia, Castile and León, Castile-La Mancha, Extremadura, and Andalusia in Spain; and Alejentejo, Algavre, the Azores, and the Centre of Portugal. They have been subject to a rapid transition from agriculture to a service economy, but they still have high employment in agriculture, low levels of education and much lower income compared to core and intermediate regions.

Using only the growth variable, the author ends up with the classical core-periphery structure of the Europe; the rich northwest and poorer south. Also, he identifies two different peripheries, one of which is the dynamic one, which have the potential to get used of the advances in technology and adoption of new forms of economic activity that requires skills, high educational attainment, adaptability and entrepreneurship of the local labour force. The other type is less dynamic periphery, which do not have the potential to adapt to changing forms of economic activity due its lack of human capital and the ongoing dependency on agriculture.

3.2. Empirical Findings Emphasizing Differentials in terms of Economic Structure, Employment and Population

An important study that evaluates the European regions according to their economic structures, employment and population features is that of Paci, Pigliaru and Pugno (2001). In their study which is mainly about the convergence in aggregate productivity and the sources of such a convergence, they identify different groups of regions considering their agricultural labour share, changes in this share, and their aggregate productivity growth.

In the beginning of their study, they mention a very slow and sluggish regional convergence in Europe and they suggest the structural change, which is out-migration from agriculture towards sectors with different productivity levels

(manufacture and services), as an important source of this convergence. Very briefly, they propose that the magnitude of the impact of the out-migration from agriculture on aggregate regional growth depends significantly on which sector absorbs the migrating workers (Paci, Pigliaru, Pugno, 2001). In other words, according to them, the labour force that is out-migrating from agriculture should move to the right sector like manufacturing activities with high productivity levels or growth enhancing service sector activities, so that convergence in aggregate productivity occurs. In addition to structural change as a source of convergence, they propose two more factors that influence the speed and the direction of the convergence process, which are, first the evolution of the employment rate within the convergence process, and second, the localized technical capacity which corresponds to the ability of regions to create new ideas and to imitate from external innovations. Following these prepositions, they intend to define homogenous groups of regions in terms of structural change and the other two above mentioned factors using cluster analysis technique. Seven different variables, which are employment share in agriculture in the initial year 1975, variation of the agriculture share over the period 1975-1997, variation over the period 1975-1997 of ratio employment over population (employment rate), ratio of patents over GDP, levels of overall labour productivity in the initial and final years, and annual average growth rate of labour productivity over the period 1975-1997 are used in their analysis.

They end up with six different subsets of regions. The first one is the core group, including 57 regions mainly located in North of Europe, France and northern Italy. These rich regions have been subject to a process of out-migration from agriculture, have the highest labour share in manufacturing and show the highest labour productivity in this sector among other regions belonging to different clusters. They also exhibit a high technological capacity. The second cluster is called the growing periphery. It consists of 36 regions belonging mainly to France, Spain, southern Italy and Finland. These regions are characterised by a productivity level that is initially lower then the European average, and a large agricultural sector. In the period from 1975 to 1997, these regions have been subject to a strong out-migration from agriculture to non-agricultural sectors, which to some extent explains their economic

growth. Also, the overall productivity growth rate is the highest in these regions. Third cluster, made of 19 regions located manly at north (Brussels, Berlin, Dutch and British regions) and Athens at south, is characterized by specialization in public services. These regions have showed a low labour share in agriculture throughout the period and a strong specialization in manufacture and services which gave rise to a relevant technological capacity. There has been a high increase of overall employment rate in these regions, and they have the highest share of public services. However, this cluster displays the lowest growth rate of aggregate labour productivity among all European regions. The forth cluster consists of 15 southern European regions which have gone through a strong process of structural change. However, they have shown a relatively low growth rate. Authors propose that this situation might be due to the low level of local technological activity in these regions. The fifth cluster, on the other hand, includes only three regions, two Greek and one Portuguese. These regions have been subject to a structural change throughout the period, but their overall employment rate show a clear reduction, due mainly to the expulsion of redundant labour from other sectors. However, the aggregate growth rate of productivity is high, which, according to the authors 'give additional support to the idea that the key feature of a structural change growth-enhancing process is the out-migration of labour from agriculture'. Lastly, the sixth cluster including only two Greek regions shows a radical structural change. These regions are characterised by a radical out-migration from agriculture associated with a strong reduction of employment rate. They, as a result, have obtained the highest increase in agricultural productivity and a significant productivity growth in other sectors as well.

To sum up, these authors attempt to analyse the European periphery with a view to their agricultural labour share, changes in this share, and aggregate productivity growth. They define the core regions as having started from a low agricultural share and displayed a low economic growth, and they identify mainly two types of periphery; the growing periphery that started from a high agricultural share, displayed a fast decline in this share and a high economic growth, and a more stagnant periphery, which has also a high initial labour share in agriculture and have

been subject to a out-migration from agriculture to other sectors, though displayed a lower economic growth due mainly to low level of local technological capacity.

Another study that classifies the European regions according to employment and population features is again that of Rodríguez-Pose (1998). In fact, the author makes this analysis following the one that he made by using income growth differentials mentioned in the previous section. In doing this, he tries to asses the effect of social factors in regional growth asking whether social conditions can favour growth. He runs the same process of formation of groups of regions using variables that indicate the social conditions of the regions, aiming to show the connection between social conditions and regional growth. The variables he uses are active population rate, female activity rate, youth activity rate, mean annual growth rate of total activity 1983-90, mean annual growth rate of female activity 1983-90, mean annual growth rate of youth activity 1983-90, percentage of part-time employment, mean annual growth rate of part-time work 1980-90, unemployment rate, youth unemployment rate, long-term unemployment, population under 15 years of age as a percentage of total, population aged 65 and over as a percentage of total, demographic dependency ratio, mean annual growth of youth population 1980-90, mean annual growth of elderly population 1980-90, mean annual growth of demographic dependency ratio 1980-90, population density, population change in the period of 1980-90, migration rate 1980-90, percentage of total population enrolled in secondary education, percentage of total population enrolled in university-level education, and percentage of the regional population living in the main city. Using these variables, he runs cluster analysis and identifies six clusters of regions.

The first cluster is that of capital regions and urban financial centres which corresponds to the first of the above mentioned groups. These regions are Hamburg and Berlin, Lazio, Madrid, Île de France; Lisbon and the Tagus Valley in Portugal, Brussels, South-east in United Kingdom; and Western Netherlands. These capital regions have a high level of qualification of population, positive rates of population growth, low demographic dependency and unemployment and a fuller integration of females in the labour market. They also experienced the highest rates of growth during 1980s. The second cluster, named intermediate dynamic and other dynamic

regions, comprises the North of Portugal, Friuli-Venezia Giulia, Catalonia, Veneto, and Flanders. They have an average rate of growth second only to the regions of the first cluster. They have high economic activity rates; lower average unemployment rates, low dependency ratios, no signs of ageing. In addition to these, total population growth has remained below the European average and in these areas, educational conditions are not advantageous. The third cluster, intermediate regions, consists of intermediate dynamic and less dynamic areas of the previous analysis, together with Galicia and Centre of Portugal, Abruzzi Copenhagen and Asturias. The mean average annual growth rate in this cluster is slightly below then that of the previous cluster. Activity rates, unemployment rates and educational enrolment levels in general, show a below-average character. High dependency rates and ageing are the most significant features of this cluster. The regions in this cluster also experienced moderate population increases. The fourth cluster, peripheral dynamic and other less dynamic regions, is made of Calabria, Sicily and Molise in Italy, Alentejo and Azores in Portugal; Andalusia, Castile-la Mancha, Murcia and Exrtemadura in Spain; North Rhine-Westphalia and Saarland in Germany; Wales in Great Briatin; Poitoi-Charantes, Limousin, Languedoc-Roussillion, and Provence-Alpes-Côte d'Azur, and Aquitaine in France; and the Eastern Netherlands. These regions show a below average growth rates. They display high unemployment rates, low activity rates, high dependency ratios, and little sign of ageing, high population growth, and poor educational enrolment levels. The fifth cluster, that of former core regions undergoing industrial decline and the Italian Mezzorgiorno, comprises Bremen in Germany; Canary Islands, the Basque Country and Cantabria in Spain; Pays de Loire, Britanny, Picardy, Upper Normandy, Lower Normandy, Nord-Pas de Calais and Lorraine in France; Campania, Puglia, Sardinia, and Basilicata in Italy; Wallonia in Belgium;, the Northern and Southern Netherlands, the North and the North-West of England and Northern Ireland; and Madeira in Portugal. These regions display low activity rates, high youth and long-term unemployment rates, low percentages of elderly population, above average demographic dependency ratios, and below average population growth. Although they have high levels of secondary education enrolment levels, number of university students is low due to

lack of local universities. Finally, the last cluster is called as the undefined cluster by the author and consists only of Corsica in France and Liguria in Italy. They have low activity levels, together with low unemployment rates. They are affected by a deep process of ageing and display declining fertility and birth rates. In addition to that, secondary school and university enrolment levels below the European average.

Using social variables leads to a slightly different core-periphery structure of Europe. While the classical north-south dichotomy -north being the rich and south being he poor- was apparent when taking into account only the income related variables, this dichotomy seems to have dissolved to some extent when only social factors are considered. To be more precise, in the latter case, the peripheral and core regions of the Europe seems to have been scattered across the European territory, as for the fact that even some regions in Netherlands and West Germany fall into periphery, while some Portuguese and Spanish regions fall into the same cluster with the classical core regions of the Europe.

3.3. Endogenous Growth Dynamics in Defining Peripherality: Aspire Project

Aspire is a European research project funded by the EU Fifth Framework Programme, and it is concerned with the changing nature of peripheral disadvantage (SAC, 2004). This study can be considered emphising on endogenous growth dynamics in explaining peripherality.

The project begins with and develops around the idea that ‘during the second half of the twentieth century the improvement of road, rail and air transport, and the increasing shift from manufacturing to service activity as the motor of the European economy, have reduced the dominance of the industrial core regions’ and that ‘new transport and communications technology together with structural trends provide potential new opportunities for peripheral regions’. In this sense, the project team argues that as geographical constraints become at least potentially weaker, due to the above mentioned technological advances, conventional explanations of peripherality which, they argue, relate it to level of accessibility, transport and travel costs, and weak agglomerative advantage, prove to be limited and inadequate.

They show this inadequacy by a simple quantitative analysis. First, they a baseline indicator of conventional peripherality is devised defined as logsum accessibility potential aggregating over road, rail and air. Then the extent to what this baseline peripherality index can explain the regional disparities in economic performance in Europe is tried to be tested using regression analysis. The result of the analysis shows that the relationship between peripherality and GDP per worker, which is a crude indicator of economic performance of regions, cannot be considered as close. The correlation coefficient r^2 is only about 0,31, which is considered as low.

The result of this analysis constitutes the essence behind the basic argument of the project, which is, in addition to, or instead of conventional concepts of peripherality like inaccessibility, other 'softer' characteristics may tend to determine the response of peripheral regions to new opportunities. These soft characteristics are identified under five headings; information society technology, business networks, social capital, governance, together with one sectoral theme, tourism.

In the project, these soft characteristics are called 'aspatial', as they are considered as not varying systematically across space. Considering these aspatial factors as the preconditions of regional development, the project characterizes the periphery with poor information and communication technology networks, scarce information society technology skills, fragmented SME sector, fragmented local society, thin institutional network, and weak global-local links.

Next, the project aims to find out how these aspatial factors differ between and whether spatial patterns can be distinguished. For this purpose, the project team carries out surveys to collect data for above mentioned five themes. Some of the information society technology indicators are ISDN subscriptions per capita, percentage of households with internet access, percentage of employment in IT sector, IT enterprises per 1,000 population, percentage of GDP of IT sector, percentage of online sales, percentage of online buyers, internet domains per capita, percentage of households using modem, percentage of households using online services, percentage of SME in innovative co-operation, EU innovation programmes, percentage of venture capital, percentage of firms with high location coefficient,

percentage of SME with increasing international contacts, number of regional clusters, and business incubators. Social capital indicators are percentage of reading newspapers daily, attachment to town/village, attachment to region, combined political interest indicator, percentage of trust in other persons, political discussion, openness to foreigner, and voluntary engagement and etc. Governance indicators are political stability index, regulatory quality index, government efficiency index, trust in institutions: justice, trust in institutions: police, trust in institutions: civil service, control of corruption index, influence of citizens on government, satisfaction with democracy, voter turnout at national elections, and voter turnout at regional elections. Tourism indicators are annual solar radiation, elevation difference, slope gradient, coastline, attractive towns, hotel beds per capita, overnight stays per capita, lakefront, riverfront and percentage of mountain areas.

First these indicators are cartographically analysed, and the result is that there is a clear north-south differentiation. Rural regions of the EU appear to be not better endowed in terms of aspatial factors, contrary to expectations. Also, most of these factors are distributed across the space rather heterogeneously. The project argues that 'these differences might contribute to the explanation of differences in economic performance of rural regions in Europe.' It proceeds by analysing the statistical correlations between these aspatial indicators stated above and selected economic output variables. The results only partly confirm the economic relevance of aspatial factors. Only most of the ICT variables are positively and significantly correlated with regional wealth.

Second, a subset of aspatial indicators and a selection of 'hard' location factors are examined with respect to their explanatory power with respect to regional economic performance. Multivariate regression analysis is run for 1085 nuts-3 regions and of the eu and 442 regions classified as rural in the project. The hard location factors used are share of GDP of in agriculture; share of GDP in manufacturing; share of GDP in construction,; share of GDP in trade, transport, tourism; share of GDP in financial services; share of GDP in other services,; accessibility, road/rail, travel; accessibility, road/rail/air, travel; accessibility, road/rail, travel/freight; accessibility, road, freight; accessibility to regional labour; baseline peripherality indicator;

national peripherality indicator; soil quality; population density; percentage of developable land; R&D expenditure as a percentage of total GDP; percentage of population with high level education; agricultural subsidies (euro/capita); European subsidies (euro/capita); national subsidies (euro/capita).

The results are as such: The aspatial variables alone explain about one third of the variance in regional economic performance if all regions in the European Union are considered and about sixty percent, if only rural regions are taken into account. Traditional 'hard' location factors explain between sixty and eight-five percent of the variance in regional performance. If aspatial indicators and traditional location factors are applied together, aspatial indicators improve the explanatory power of the model by about ten percent. As a result, they conclude that peripherality is still to a large extent explained by traditional 'hard' factors, but soft factors contribute to their explanatory power to a certain extent.

3.4 Empirical Findings on European Regions with a View to Economic Integration

A different group of empirical studies are the ones that study the European regions with a view to economic integration and that try to understand how the European periphery is being affected by the integration. The common concern of these empirical studies is the spatial impact of the economic integration and various processes of change associated with the integration and accession.

'The European Community is set on a course towards greater integration during the 1990s' (Hall and van der Wee, 1995). The impacts of this have been observable in 2000s as well. The changes that are gone through in this period are remarked by the launch of the Single European Market together with the process of accession. Most of the studies carried out conclude with a pessimistic vision from a spatial perspective, arguing that the completion of the European market will further enhance concentration of economic activity in certain places. Others argued that everybody would benefit from the process, but the consensus was that the integration would drive the regions into a severer competition. Parallel to these concerns, different studies are made to discuss the effects of the integration on the European spatial

pattern, and they all agreed on the need for a regional policy modified and better targeted taking into account the above mentioned potential spatial impacts.

While researches are trying to analyse the impacts of greater integration and enlargement of the EU on the Europe's spatial pattern, different types of regions emerge as important. One of them is border areas. Border regions cover almost 40% of the EU-15 land area and account for 25% of the population. They are even more important in the new members, accounting for 66% of the land area and 58% of population. Enlargement have, therefore, led to a significant growth in their prevalence in the Union.

The removal of internal frontiers within the community is considered to seem to have its most powerful spatial effects on border areas (Albrechts, 1995). So, border areas, which are considered as the periphery of Europe, gain special importance. Also ESDP, which is a policy framework for member states, regions and local authorities, attracts attention to border areas by expressing the need for the pursuit of a polycentric development to ensure regionally balanced development, as the EU is becoming fully integrated not only within itself, but with the global economy as well (ESDP, 1999). It is stressed in this framework that, through development of a more polycentric European settlement structure with a graduated city-ranking, the further excessive economic and demographic concentration in the core of Europe will be avoided to some extent and the economic potential of all regions of the EU can be utilised. In this context, small and medium sized cities at the external border of Europe gain importance and considered as potential engines of growth of the periphery. As a consequence, they are suggested to adjust to new roles and to think and act complementarily through cross-border cooperation within the wider European space compared with their transitional position on the periphery of the Member States (Albrechts, 1995).

Another type of regions that gain importance is 'gateway cities'. These are cities which are at the external border of the Europe, mainly Eastern Europe and North Africa. They provide access to the territory of the EU through large intercontinental airports, large sea ports, trade fair, exhibitions and cultural facilities. They may also

include metropolitan regions located on the periphery, which can use specific advantages, such as low labour costs or special links with economic centres outside Europe or neighbouring non-Member States (ESDP, 1999). Hence, these gateway cities are considered as of prime importance for the future of Europe's periphery. However, they are also thought to be prone to experience increasing immigrations from Eastern Europe, and the Middle East (Abrechts, 1995). This anticipation addresses new potential problems for these gateway cities, which are mainly in peripheral Europe.

The dominance of large cities in Europe is also a major concern in empirical studies on European regions. It is argued that this dominance 'will further increase as they offer attractive jobs for skilled workers and provide the high-quality services and cultural and leisure facilities the post-modern society wishes to have within easy reach' (Albrechts, 1995). So, the flow of labour from periphery to labour seems to continue in the future.

Baudelle and Guy (2004) develop four different prospective scenarios considering the above discussions on the possible affects of integration and enlargement of the EU on the peripheral areas of the Western Europe and EU regional policy. In the first scenario, a two-tier Europe, the dichotomy between a rich well-served core and peripheries in totally opposite conditions is intensifying. 'The monetary, capital, technological and spatial integration goes on increasing at the core while competition, dependency and marginalization penalize peripheries' (Baudell and Guy, 2004). An unequal share of tasks occurs. At the core, management activities producing intensive flows of capital and information take place. The near environment (first geographical belt, constitutes an area where technological know-how devoted to technological developments is created. In the second belt, on the other hand, which is the periphery, production of secondary goods (assembly factories, standard agricultural products with a low value added) take place. In this scenario, technological developments and infrastructure improvements work in favour of the core.

According to the second scenario, which foresees unequal regional integrations in Europe, only powerful regions including gateway cities are able to take advantage of the integration and enlargement. To be more precise, regions that are highly integrated, wealthy and provided with an important regional power will benefit from the ongoing processes. Those regions of the periphery that cannot develop co-operations with other regions and within themselves, lack human capital and financial resources will remain as peripheral areas.

In the third scenario, that of diffused metropolization, foresees that technology intensive sectors, originally located in a limited number of cities, settle progressively in smaller size agglomerations benefiting from their good level of services to enterprises and their quality of life. The redeployment takes place along growth corridors. Baudelle and Guy, here uses the red octopus conceptualization of Van der Meer to describe these eurocorridors, that 'benefit from trans-European networks structuring powerful and fast corridors of circulation extending towards the east and enhancing the enlargement of the Union' (Baudelle and Guy, 2004). However, according to this scenario, regions that cannot be integrated into good quality networks cannot take place in this reorganisation and further discrepancies occur between them and the regions on the growth corridor.

The last scenario Baudelle and Guy present is actually what ESDP suggests as a guideline for EU regional policy. In this scenario the old core-periphery structure of the EU progressively fades, as the enterprises increasingly invest in peripheral agglomerations, observing that their productivity increases in these peripheral areas where there is no agglomeration diseconomies like at the core. Hence, the new areas of integration benefit from this economic growth and they become better endowed to compete with other regions, cope with their problems, co-operate with other agglomerations, and innovate. These agglomerations in the periphery also become more integrated with their countryside, helping them to make use of their resources. Baudelle and Guy use Kunzman's conceptualization of 'bunch of grapes' and develop the below visualization.

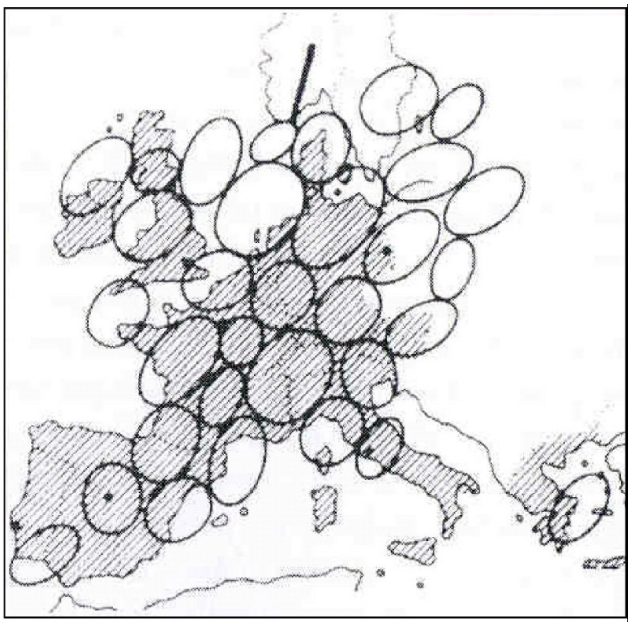


Figure 3.1 Bunch of Grapes (Source: Baudelle and Guy, 2004)

At the end of their study, Baudelle and Guy conclude that these scenarios are not excluding one another, but follow one another at various rates in the regions of the EU, depending on their rate of development (Figure 3.1). They consider especially the scenario of diffused metropolization as a step towards polycentrism.

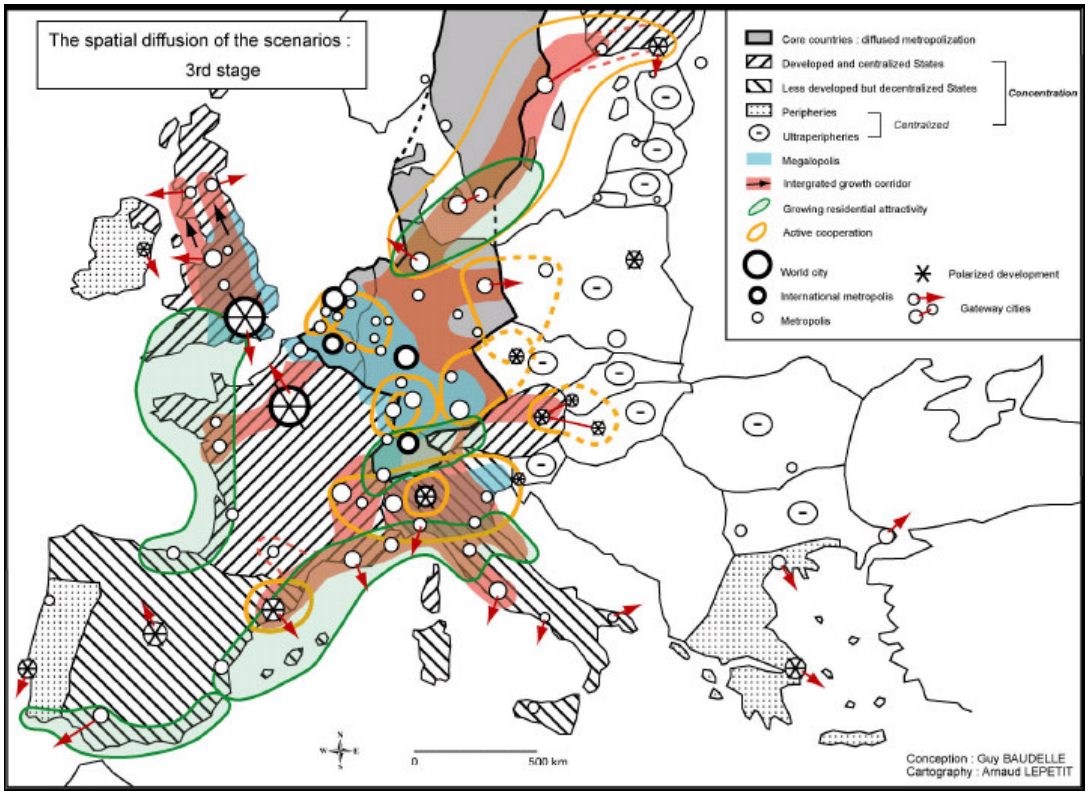


Figure 3.2 The Spatial Diffusion of the Scenarios (Source: Baudelle and Guy, 2004)

3.5. Evaluation of the Empirical Studies on the European Periphery

There is a huge theoretical literature which provides us with different concepts like income, income growth, economic structure, employment and population, welfare conditions, human capital and innovative capacity, by which different definitions of the periphery can be made. However, the results of theoretical discussions and their richness do not fully reflect themselves in the empirical literature on the periphery. The empirical studies on the European periphery are mainly made in the form of analysis of convergence in income and income growth. Another group of empirical studies tries to understand how the European integration affects the European periphery. However, none of these studies try to see the European periphery from different perspectives and by considering different concepts that may be used in characterisng different peripheries. In other words, there is small subset of studies

within the huge empirical literature on the European periphery, and a review their findings is tried to be made this section. One group of studies is those that try to analyse the European periphery by using income and income growth differentials. For example, Lopez-Bazo (2003) argues that there has been a slight convergence in the period from 1975 to 1996 in terms of GDP per inhabitant. He also adds that, accessibility to markets and geographical location, which result in externalities, have a crucial role in the emergence of regional disparities. On the other hand, Rodríguez-Pose (1998), uses income growth differentials, classifies the European regions in terms of income differentials, and ends up with the classical dichotomy of rich north-poor south.

Another group of studies emphasize more on economic structure and/or social concepts while analyzing the European regions. For example, Paci, Pigluari and Pugno (2003) use agricultural labour share, changes in this share and aggregate productivity growth. They define two types of peripheries. One is the growing periphery, which has been to a fast structural change in the form of out-migration from agriculture. The other one is the stagnant periphery, which has been subject to a structural change a low productivity growth. Rodríguez-Pose (1998), on the other hand, attempts to evaluate the European regions by classifying them according their employment and social features. He finds out that classical rich north-poor south dichotomy no more exists when social variables are used as some rich Western European regions are classified as core, whereas some Southern European regions belong to the periphery.

CHAPTER 4

DEFINING EUROPEAN PERIPHERY BY USING DIFFERENT DISCOURSES

The theoretical and empirical discussions on economic growth, development and regional development have shown that there is a shift in the understanding of the periphery. Whereas the traditional explanations of the periphery emphasized concepts like income, accessibility, transport advantages, externalities come out of agglomerations and etc., the peripherality began to be explained by using concepts like human capital, institutional endowment, and diffusion of new ideas through network linkages, parallel to the adoption of new forms of economic activity. In addition to this, these different discussions on periphery show that there is not only one possible way of defining the peripherality, but there are several of them, and they evolve in time. This chapter intends to show the European core-periphery structure spatially by taking the different definitions of the periphery as a base.

As explained in the first chapter, different theories of economic growth and development, and regional development that are discussed in the thesis emphasize different, but related concepts. Also, it is put forward that not all of these theories are helpful in contemplating the above mentioned shift in definition and understanding of the peripherality. In other words, only several of the discussed theories provide meaningful and significant results reflecting the change in the definition of the periphery. Those that are helpful in this respect are defined as definition of the periphery based on income and income growth differentials that is based on Neoclassical Economics; definition of the periphery based on externalities emphasized in Regional Development Theories; definition of the periphery based on economic structure, employment and population potentials emphasized in

Development Economics; definition of the periphery based on welfare conditions emphasized again in Development Economics; and lastly, definition of the periphery based on endogenous growth dynamics emphasized mainly in Endogenous Growth Theory and Territorial Models of Development.

The task of this chapter is to put forward these different ways of defining the periphery more concretely, and to map the European periphery according to each definition. In doing this, first, indicators of the concepts which are determined in the second chapter and which belong to above mentioned five definitions of the periphery, are identified. These indicators are shown in Table 4.1.

Table 4.1 Indicators of the Concepts that Belong to Definitions of the Periphery

DEFINITION	CONCEPTS	INDICATORS
Income and Income Growth Differentials	Income	Income per capita
	Income Growth	Increase in income per capita
Externalities	Transportation	Volume of transport networks
	Scale economies/ Agglomeration	Large scale firms, large scale investment, volume of production, externalities
	Urbanization	Urban facilities, financial activities
Economic Structure, employment and population potentials	Economic Structure	Sectoral composition of Gross Domestic Product or Gross Value Added Structural Change (Change in the sectoral composition of the employment, GDP or GVA in a time interval)
	Population	Population density and change, migration, age structure of the population, economic activity rates
	Employment	Employment rates, sectoral composition of employment, unemployment
Welfare	Health, Education, Poverty	School enrolment rates, educational attainment of the population, expenditures on education, illiteracy, average years of schooling, average class size Infant mortality, life expectancy, nutrition, medical care Poverty line
Endogenous Growth Dynamics	Human Capital	School enrolment rates, educational attainment, high skilled labor, investment in education, training, average years of schooling, medical care, investment in health, people's skills
	Social capital	Trust, reciprocity among the members of the society, institutional endowment, trust on institutions
	Physical capital	Investments, savings, gross fixed capital formation
	Innovative Capacity	R&D facilities, patents, investments in knowledge

Next, a data set for each of these definitions and their concepts is formed. However, there is a shortage of regional data, and at times even of national data, especially regarding externalities social capital. This shortage hampered the attempt to build data sets for the definitions of the periphery based on externalities. There are several reasons for the unavailability of this kind of data. First of all, some of the indicators of externalities like agglomeration and almost all of the social capital indicators are difficult to quantify. For example, average firm/plant size could be an indicator of agglomeration (Dunford, 2003), but it is not available neither at national nor at regional level. Transport costs or accessibility is also difficult to calculate for all of the regions included in the analysis. Urbanisation, on the other hand, is easier to quantify. Population density, urban population, density of motorways, number of private cars per a number of inhabitants could be used as indicators of urbanisation. However, they are far from being adequate. Indicators of urbanisation should include number of financial institutions, notaries, and those regarding art and culture facilities and etc. However, these are not available at regional level. Urban population is also not available for many of the European regions, for there is no clear urban-rural distinction in very densely populated areas like in Germany, Belgium and the Netherlands. Density of motorways is available for many of the regions; however there are a considerable number of regions, i.e. Turkish regions, for which it is not available. Social capital indicators are even more difficult to be quantified for social capital is by nature tacit in the society . Human capital can be quantified as in the definition of the periphery based on endogenous growth dynamics, but there are further human capital indicators like quality of natural and man-made environment, creative climate (as expresses in the degree of multiplicity of political and intellectual discussion, participation of citizens in public affairs etc.), identification of local citizens with their location – city or region- based on historical, and cultural innovation, and future aspirations.

Consequently, data sets for five different definitions are formed, which are the definition of the periphery based on income and income growth differentials; based on welfare conditions regarding income, health and education; based on economic

structure, employment and population potentials; and lastly based on endogenous growth dynamics including human capital and innovative capacity.

The second task of this chapter is to map the European core and periphery according to these four different definitions. This is realized by classifying the 287 NUTS2 regions of the EU and the accession countries according to each data set, and mapping each of these classifications. In other words, different core-periphery maps of Europe by using four different discourses are tried to be made, in order to see the variety in the understanding of the peripherality across the European space, and to demonstrate it spatially.

4.1 Methodology

As mentioned aove, the main task of this chapter is to classify the regions according to income and income growth differentials; economic structure, employment and population potentials; welfare conditions; and endogenous growth dynamics. The method used for classification of the regions according to their similarities using different discourses is Cluster Analysis. A large number of clustering definitions can be found in the literature, from simple to elaborate. The simplest definition is shared among all and includes one fundamental concept, which is the grouping together of similar data items into clusters. A more elaborate one is that, it is a multivariate statistical procedure that starts with a data set containing information about a sample of entities and attempts to reorganize these entities into relatively homogenous groups (Aldenderfer, M.S., Blashfield R.K., 1984 p.7).

There are mainly two kinds of clustering methods; hierarchical clustering and non-hierarchical clustering. The most common approach to cluster analysis is the hierarchical method (Jobson, 1992; Gore, 2000). This method starts with the finest (coarsest) possible partition and put groups together (split groups apart) step by step (Härdle W. and Limar L., 2003). In non-hierarchical clustering, on the other hand, 'the data are divided into k partitions of groups with each partition representing a cluster' (Sharma, S., 1996). Therefore, in this method, the number of clusters is predetermined and thereby the observations are allocated among the number of clusters. However, in this study clustering was performed based on the hierarchical

technique, as the objective was to determine the existence of a number of different clusters.

Hierarchical clustering procedure can also be applied using different linkage methods, like single-linkage, complete-linkage, average-linkage, cetroid, median methods and Ward's method (Ward, 1963), which is also called minimum-variance method. These clustering methods differ primarily in how the distance between clusters is measured to determine which clusters are joined at successive stages of the analysis. In this analysis, Ward's method is applied, which is considered as one of the most widely used methods (Karson, M.J.,1982; Brown, S.D., 2000). In this method, cluster membership is assigned by calculating the total sum of squared deviations from the mean of a cluster. The criterion for partition is that it should produce the smallest possible increase in the error sum of squares.

In Ward's minimum-variance method, the distance between any two clusters is defined as:

$$D = \| X - X \| KL\ K\ L\ /(1/NK+1/NL)$$

where, xJ is the mean input vector for cluster J

NJ is the number of cases in cluster J (in this case regions)

and, || || denotes the Euclidean distance function.

At each step of the aggregation, the two clusters closest together are combined to form a new cluster for the next higher level of aggregation.

There are several for choosing Ward's method. First, all the above mentioned linkage models were tried for each data set. However, only Ward's and average linkage methods gave appropriate and interpretable solutions. Single-linkage, centroid, and median methods tended to sort most of regions into one mega-cluster, while putting one or two regions into a single cluster. In other words, they made a classification without differentiating the minor differences among the regions that are classified into the mega-cluster. In average-linkage and Ward's methods, the results were more interpretable. This outcome is actually due to these methods' relative insensitivity to outliers (Jobson, J.D., 1992). The reason for the elimination of average-linkage

method is about the degree of coverage required of a clustering method, which is considered as an important factor in method performance (Aldenderfer, M.S., Blashfield R.K., 1984, p.60). In this study, total coverage is intended, in which all regions are classified into a group. For such an intention Ward's Method is recommended in Monte Carlo Studies (Aldenderfer, M.S., Blashfield R.K., 1984, p.60). Another reason for choosing Ward's method is that it tends to find compact clusters of well distributed size. This feature makes the results of the method more appropriate for spatial visualisations.

Also, in order to carry out a cluster analysis, the similarity (or dissimilarity) of every pair of individuals is needed to be measured. In this analysis Squared Euclidean Distance measure is chosen, for it is inherent to the Ward's Method, as shown in the above equation. Jambu, M and Lebeaux, M. O. (1983) explain this as such; in the clustering procedure with Ward's Method the cluster 'is considered as a cloud of points with masses in Euclidean space to which the norm has been assigned'.

The third point to be decided on in clustering procedure is whether or not to standardize the data. In this analysis, the data is standardized, for it includes, as will be mentioned in the next section, variables with different measurement scales and ranges. As a standardization form, Z scores standardization is chosen, which corresponds to the conversion of each variable to standard scores. 'This is the general form of a normalized distance function, which utilizes an Euclidean distance measure amenable to a normalizing transformation of the raw data' (Anderson, Black, Hair and Tatham, 1998, p. 489). This standardization converts each raw data score into a standardized value with a mean of 0 and standard deviation of 1.

After it is decided on Ward's method as a linkage function, Squared Euclidean distance as a distance function, and Z scores standardization as the standardization form, the cluster analysis are carried out. The analysis is performed with SPSS version 11.5 for Windows. Four final cluster analysis are run for 286 NUTS2 regions of the EU and the accession countries. In each of the analysis a different data set is used. These data sets are mentioned in detail in the next section. After clusters are built, they are plotted on a NUTS2 map.

4.2. Available Database

As mentioned before, four different data sets are formed, for the definition of the periphery based on income and income growth differentials; economic structure, employment and population potentials; welfare conditions and lastly, endogenous growth dynamics. The first data set composed only of income and income growth. Second data set is composed of economic structure, employment, and population indicators. Third data set is composed of welfare indicators like income, education and health. Fourth data set is composed of indicators of innovative capacity and human capital.

GDP per inhabitant and growth of GDP per inhabitant constitute the first data set. 'GDP is the most frequently used quantitative summary measures of regional economic performance and is, first of all, a measure of the aggregate vale added (or new wealt) created in a particular period' (Dunford, 2003). In other words, 'it is a reflection of the geography of the production of goods and services' (Dunford, 2003). And, GDP per inhabitant is a measure that enables one to compare regions regardless of their population size. Growth of GDP per inhabitant, on the other hand, is used to reflect the growth of the regional economy.

The second data set is made of economic structure, employment and population indicators. Economic structure indicators are identified as those that indicate the sectoral composition, and the percentage change in the sectoral composition of the economy. The former is measured as shares of agriculture, industry, manufacturing and services GVA in total GVA. Here, the same measurement could be made using GDP figures instead of GVA; however, sectoral composition of GDP is not available for all regions. Using GVA measures does not make any difference, for GVA and GDP are very similar measures. The latter is measured as percentage change in the shares of agriculture, industry and services GVA in total GVA in the period from 1995 to 2001 (agricultural GVA as a percentage of total GVA in 2001 minus agricultural GVA as a percentage of total GVA in 1995, divided by the agricultural GVA as a percentage of total GVA in 1995, and multiplied by 100, and same calculation for industry and services sectors). They are helpful to see the structural

change taking place in the regions In fact, for a more accurate analysis of structural change, a longer time period should be taken into account, however, sectoral GVA data is not available for the regions of the New Member States for pre-1995s. ın addtiion to that, in order to make a more accurate analysis of economic structure of a regions, manifacturing sector should have been disaggregated into subsectors as those with high gross value added and those with low gross value added. However, such a data is again not available.

Employment indicators are identified as those that indicate the sectoral composition of employment, employment rates and youth unemployment rates. Sectoral composition of the employment is measured as the shares of agriculture, industry and services in total employment. Employment rates are used measured as the share of employed persons aged 15-64 in the total population of the same age group. Here employed persons refer to all persons aged 15 and over and who did any work for pay or profit during the reference week (The Eurostat Concepts and Definitions Database). Youth unemployment rates, on the te other hand, are used measured as the percentage of unemployed in 0-25 age group. Long term unemployment rates, which refer to the persons who did not do any work for pay or profit during the reference year as a percentage of population aged 25 and over, could not be used, for they were not available for Turkish regions.

Economic activity rates, total population change, population density, and percentage of young populaion are used as the indicators of population potentials in the regions. Economic activity rates, which are also named as labour force participation rate, represent the labour force as a percentage of the population of 15-64 age group. Here, labour force refers to active population, in other words, to the sum of employed and unemployed persons(The Eurostat Concepts and Definitions Database). Total population change rate indicates the relative population increase in percent over a time period. Here, five year period is used (Population at 1 January 2000 minus population at 1 January 1996, divided by the population at 1 January 1996, and multiplied by 1000). Population density indicates the number of inhabitants per square kilometre. Lastly, percentage of young population indicates the population aged 0-15 as a percentage of total population.

Welfare indicators, on the other hand, are identified as number of hospital beds and number of health personnel for 10000 inhabitants, higher education graduates as a percentage of population aged 25-64, and number of private cars per 10 inhabitants. Other welfare indicators such as life expectancy, illiteracy rate, poverty line, etc could be used. However, data of these indicators are available only at national level. For this purpose, income per capita is also used as a welfare indicator for it is an aggregate measure of welfare conditions in a region or a country.

The second data set is made of indicators of endogenous growth dynamics. They are R&D expenditure as a percentage of GDP, R&D personnel as a percentage of total active population, percentage change in R&D expenditure as a percentage of GDP, number of patent applications per million inhabitants, percentage change in patent applications, and higher education graduates as a percentage of population aged 25-64. R&D expenditures as a percentage of total GDP for Turkish regions are not available. For this purpose, the number of R&D units for provinces are used to acquire the number of R&D units for NUTS2 regions. Then, the national data of R&D expenditure as a percentage of total GDP is disaggregated into NUTS2 regions in proportion to the number of R&D units. Here, it is assumed that each R&D unit has the same amount of R&D expenditure.

Indicators such as investment in knowledge intensive sectors per person employed could also be used, but they are available only at national level and not for all countries. Also, number of companies in medium-high and high-tech manufacturing and high-tech services (% of total number of companies) and number of medium-high and high-tech manufacturing and high-tech services sectors (% of total number of sectors) are indicators of innovative capacity, and human resources in science and technology as a percentage of 25 – 64 years age class could be an indicator of human capital. However, they are not available for all regions.

The indicators that belong to each of these data sets, years, levels (NUTS0, NUTS1, NUTS2), and the sources can followed on the below table. In the following sections, on the other hand, the 287 NUTS2 regions are evaluated for the available data.

Table 4.2 Indicators Chosen Due to Availibility of Data

DEFINITION	AVAILABLE INDICATORS		YEAR	LEVEL	SOURCE
1ST Data Set: Income and Income Growth Differentials	-GDP per inhabitant		2001	NUTS2	EU-25, BG, RO: Eurostat; TR:DIE
	-Growth of GDP per inhabitant		2001 TR:2000	NUTS2	Eurostat; TR:DIE
2nd Data Set: Economic Structure, Employment, Population	Economic Structure	- Share of agricultural sector GVA in total GVA - Share of industrial GVA in total GVA - Share of services GVA in total GVA -Share of manifactıring GVA in total GVA	2002 TR:2000	NUTS2	Eurostat
		-Percentage change in the agricultural GVA in total GVA - Percentage change in the share of services GVA in total GVA - Percentage change in the share of industrial GVA in total GVA	1995-2001 TR: 1994-2001	NUTS2	Eurostat
	Employment	- Employment in agriculture as a percentage of total employment - Employment in industry as a percentage of total employment - Employment in services as a percentage of total employment	2000	NUTS2	EU-25, BG, RO: Eurostat; TR:DIE, DPT
		- Employment rates of men and women aged between 15-64 -Youth unemployment rate	2003	NUTS2 TR: Geographical Regions except for TR1, TR51 and TR31	EU-25, BG, RO: Eurostat; TR:DIE

Table 4.2 (Continued)

DEFINITION	AVAILABLE INDICATORS		YEAR	LEVEL	SOURCE
2nd Data Set: Economic Structure, Employment, Population	Population	- Economic activity rates	2003	NUTS2 TR: Geographical Regions except for TR1, TR51 and TR31	EU-25, BG, RO: Eurostat; TR:DIE
		- Population density (number of inhabitants per km²)	2002 TR:2003	NUTS2	EU-25, BG, RO: Eurostat; TR:DPT
		- Total population change rate	1996-2000	NUTS2	EU-25, BG, RO: Eurostat; TR:DIE
		- Percentage of population aged 0-15 in total population	2000	NUTS2 TR: National	EU-25, BG, RO: Eurostat; TR:DIE
3rd Data Set: Welfare Conditions	- GDP per inhabitant		2001	NUTS2	EU-25, BG, RO: Eurostat; TR:DIE
	- Higher education graduates as a percentage of population aged 25-64		2001 FR, UK, TR:2000	NUTS2	EU-25, BG, RO: Eurostat; TR:DIE
	- Number of hospital beds per 1000 inhabitants		2001 BE, TR: 2000	NUTS2 DE, UK, FI: NUTS1	EU-25, BG, RO: Eurostat; TR:DPT
	- Number of health personnel per 1000 inhabitants		2002 TR:2000	NUTS2 DE, UK FI: NUTS1	EU-25, BG, RO: Eurostat; TR:DPT
	- Number of private cars per 10 inhabitants		2001	NUTS2	EU-25, BG, RO: Eurostat; TR:DPT

Table 4.2 (Continued)

DEFINITION	AVAILABLE INDICATORS	YEAR	LEVEL	SOURCE
4rd Data Set: Endogenous Growth Dynamics	- R&D expenditure as a percentage of GDP	2002 AT:1998; DE, NL, PT, SE: 2001; TR :2000 ; UK : 1999	NUTS2	Eusrostat, TR :DIE and Tübitak
	- R&D personnel as a percentage of total active population	2001 AT:1998; SE, DEB, GR:1999; IE, IT:2000; CZ, FI, HU, PL, RO: 2002	NUTS2	EU-25, BG, RO: Eurostat; TR: Tübitak
	-Percentage change in R&D expenditure as a percentage of GDP	1999-2001 (CY,EE,RO:98-2001;GR, UK:97-99;IT:97-2000)	NUTS2 AT, BE, BG, CZ, HU, PL, PT, RO, SE, SK, TR: national; UK, FI: NUTS1	Eurostat TR: DIE
	-European patent applications per million inhabitants	2002 TR:2000	BG, CZ, HU, PL, RO, SK: National	EU-25, BG, RO: Eurostat; TR: TPE
	-Percenrage change in the number of patent applications per million inhabitants	2000-2002	NUTS2 BG, CZ, HU, PL, RO, SK, TR: national; FI:NUTS1	Eurostat TR: TPO
	- Higher education graduates as a percentage of population aged 25-64	2001 FR, UK, TR:2000	NUTS2	EU-25, BG, RO: Eurostat; TR:DIE

4.2.1. Income Differentials

The economic development of a region is, as a rule, expressed in terms of its gross domestic product (GDP) (Eurostat, Regions: Statistical Yearbook, 2001, 2003).

Figure 4.1 shows the regional distribution of GDP for the European Union and the candidate countries. GDP per inhabitant ranges from 1329 Euros per capita in north-east Romania to 72290 Euros per capita in the UK Inner London region. If we consider Turkey as well, with Ağrı region whose GDP per in habitant is 804 euros, the range of disparities even widens. Brussels, Luxembourg and Hamburg follow in second, third and fifth places respectively.

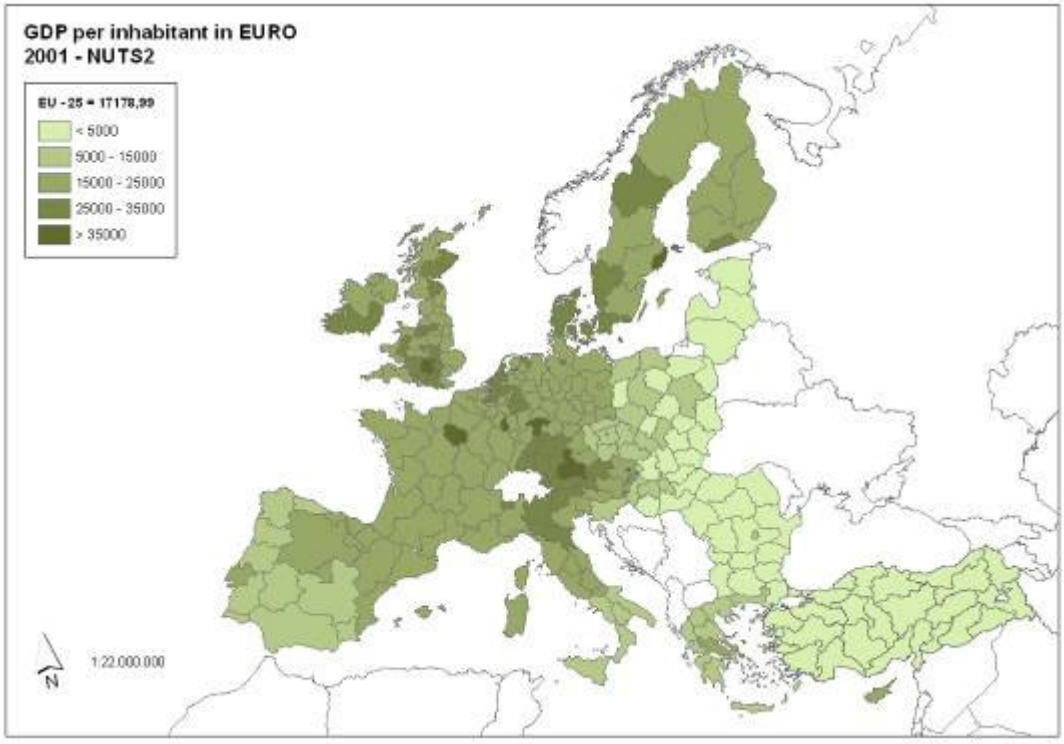


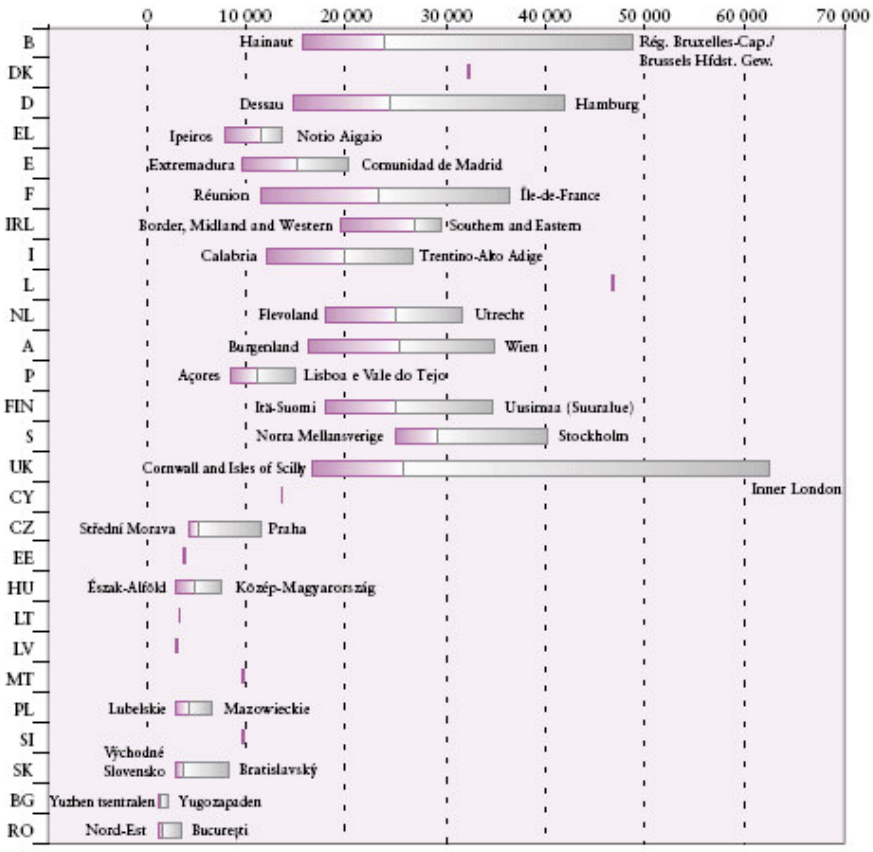
Figure 4.1 GDP per Inhabitant in EURO, NUTS level 2, 2001

As can be seen on the figure, all the regions of Turkey and Bulgaria, regions in Romania except for Bucharest, all three Baltic countries, and some of the regions in Poland, Check Republic, Slovak Republic and Hungary have GDP per inhabitant less

then 5000 euros. Among the new member states, Slovenia, with about 11000 euros, has the highest GDP per inhabitant. In addition, all regions of Greece except for Sterea Ellada at the west of Athens, and all the regions of Portugal except for Lisbon, southern regions of Spain and Italy have GDP per inhabitant less then 15000 euros, which is less then the EU-25 average.

There are also differences within the countries, as Graph 3.2 shows. The largest regional differences are in the United Kingdom, where the Inner London region, in particular, stands out with its very high GDP per capita. However, this disparity is mostly due to the borders of the regions and the resulting commuter effect. If London is removed from the equation, the range of regional GDP is fairly average.

Table 4.3 Gross Domestic Product, NUTS level 2, 2000 (million EUR per capita) (Source: EUROSTAT)



4.2.2 Economic Structure

The economies of the regions of Europe have different, at times contrasting structural features. These differences constitute one of the basic reasons behind the regional disparities. In this section, a descriptive analysis of the structure of the European economy by sector is tried to be made at regional level, by using shares of the four sectors in total GVA. The sectors that are taken up are agriculture, industry, manufacturing and services.

Figure 4.2 shows the share of agriculture in the regions of Europe, in total national GVA. As the map shows, in accession countries, agriculture has still a considerable share in the country's total GVA. Especially in most of the regions of Turkey, this share is high (above 21%). However, agriculture's share in central, western and northern Europe including the UK, eastern France, the whole of Germany, Denmark and northern Sweden is low (below 3%). In the regions of New Member States, share of agriculture is generally lower then in accession countries, due to the structural change they have experienced in their accession process. In addition to that, in southern Europe, namely in southern Portuguese, southern Spanish and Greek regions, share of agriculture is still higher then in northern regions.

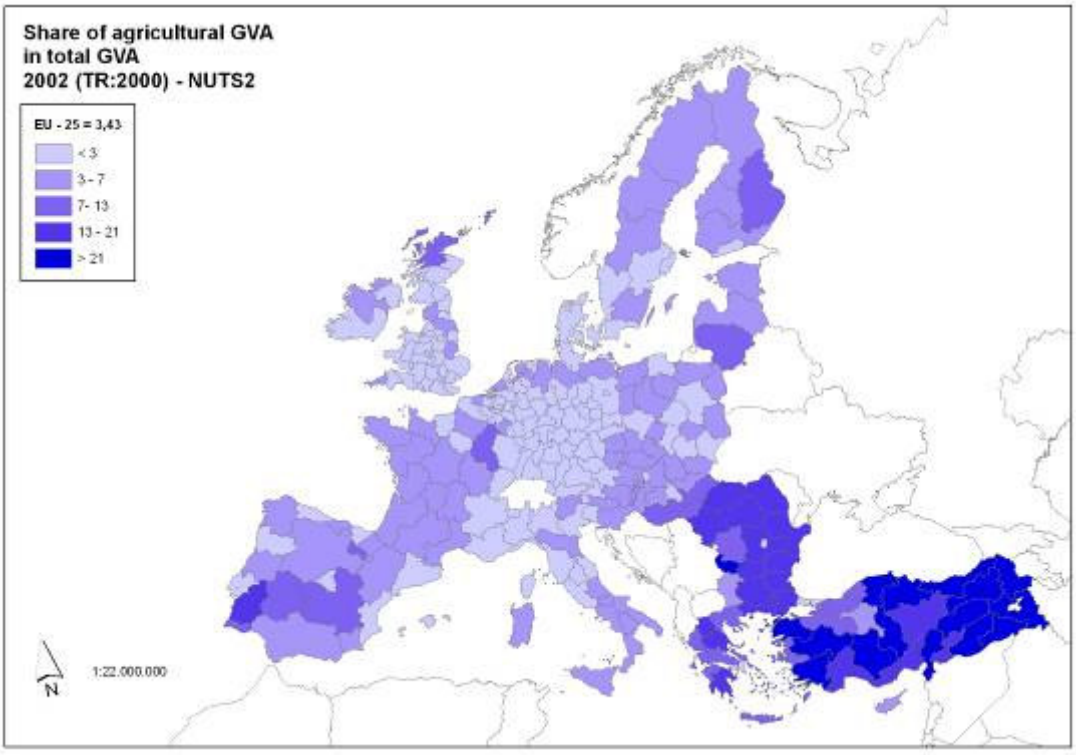


Figure 4.2 Share of Agricultural GVA in Total GVA, 2002

Figure 4.3 shows the share of industry in the regions of Europe, in total national GVA. As can be seen on the map, industry still predominates in the regions of New Member States and accession countries. In Romania, Check Republic, western Hungary and western Turkey, share of industry in total GVA is high (above 36%). In some southern German regions, Finland and Ireland, share of industry is also high. On the other hand, in the regions of UK, France, northern Germany, Poland, Bulgaria and Baltic countries, share of industry is lower then 24%, and at times lower then 17%. In Turkey, except for some western regions, share of industry is also very low.

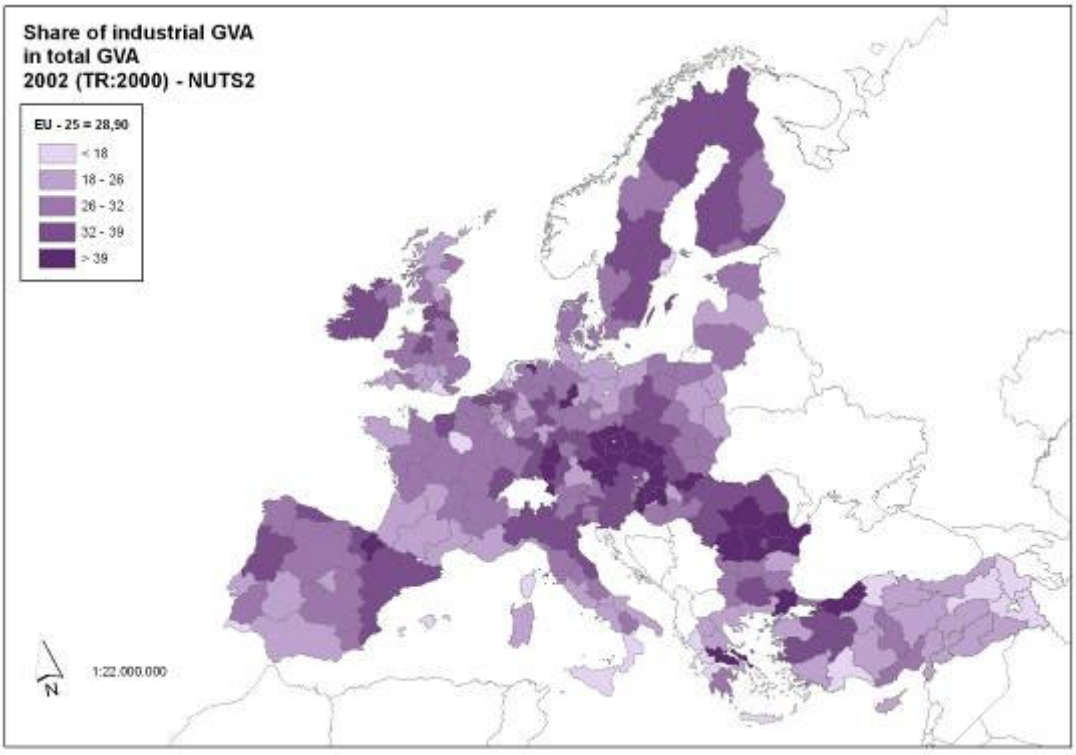


Figure 4.3 Share of Industry GVA in Total GVA, 2002

Here, industry includes mining and construction as well. For this can be misleading as regions that have high shares only in mining and construction stand out has having high shares in total industry, share of manufacturing in total GVA in the EU regions is also needed to be considered for a more accurate evaluation of the regions' economic structure. Figure 4.4 shows the share of manufacturing in total GVA in the EU regions. As the map shows, in the regions of southern Germany, northern Italy, Ireland, northern Sweden, Finland, Romania and north-western Turkey, share of manufacturing in total GVA is very high (above 42%). In almost all of the rest of the regions, this share is below low, (below 22%), which means manufacturing is concentred in certain locations in Europe. Moreover, it is often concentrated in a few regions of a country. This situation is most clear in northern-western Turkey and northern Italy, which supports the lagging behind of the rest of the regions in these countries.

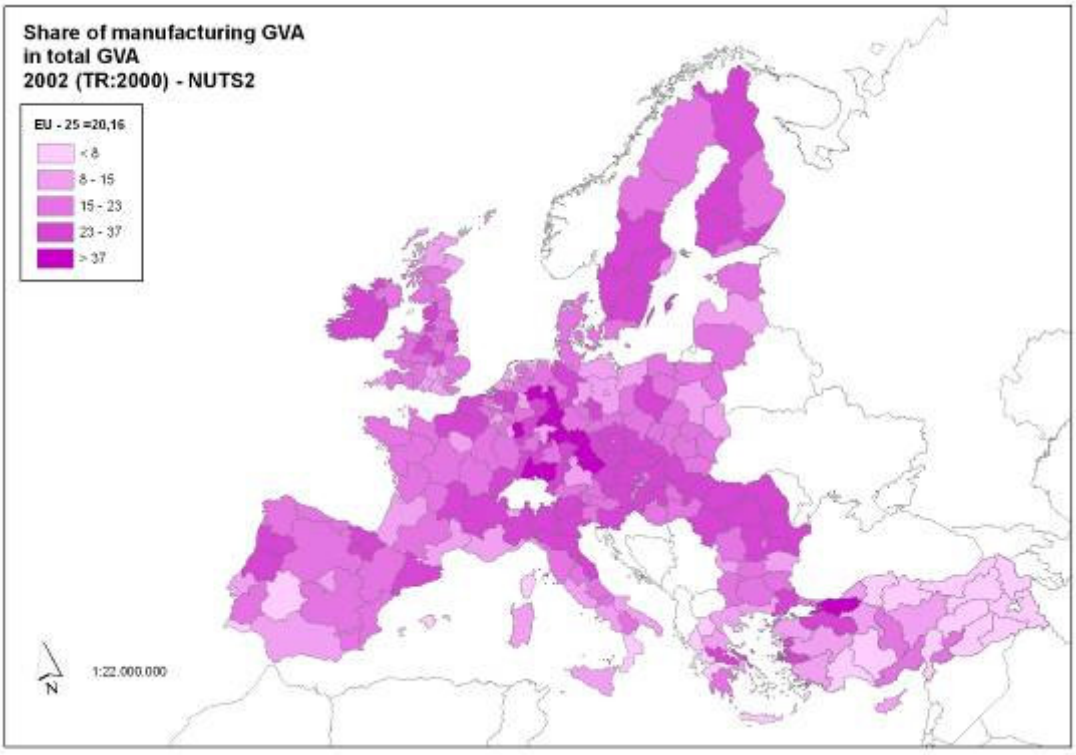


Figure 4.4 Share of Manufacturing GVA in Total GVA

Figure 4.5 shows the share of services GVA in total GVA in the regions of Europe. As the map shows, services sector dominates almost in all of the regions. There are a few regions, located mainly in Eastern Europe, where share of services is relative low (below 49%). These are generally old industrial regions of Check Republic, western Hungary and Romania. Especially in metropolitan regions like London, in the regions of Benelux countries, Paris, Stockholm, Hamburg, Berlin, Vienna, Prague, Budapest, Athens, Lisbon, Madrid, Lazio, and Istanbul and Ankara; and in coastal regions of France, and in Mediterranean and Aegean islands, share of services is very high (above 70%).

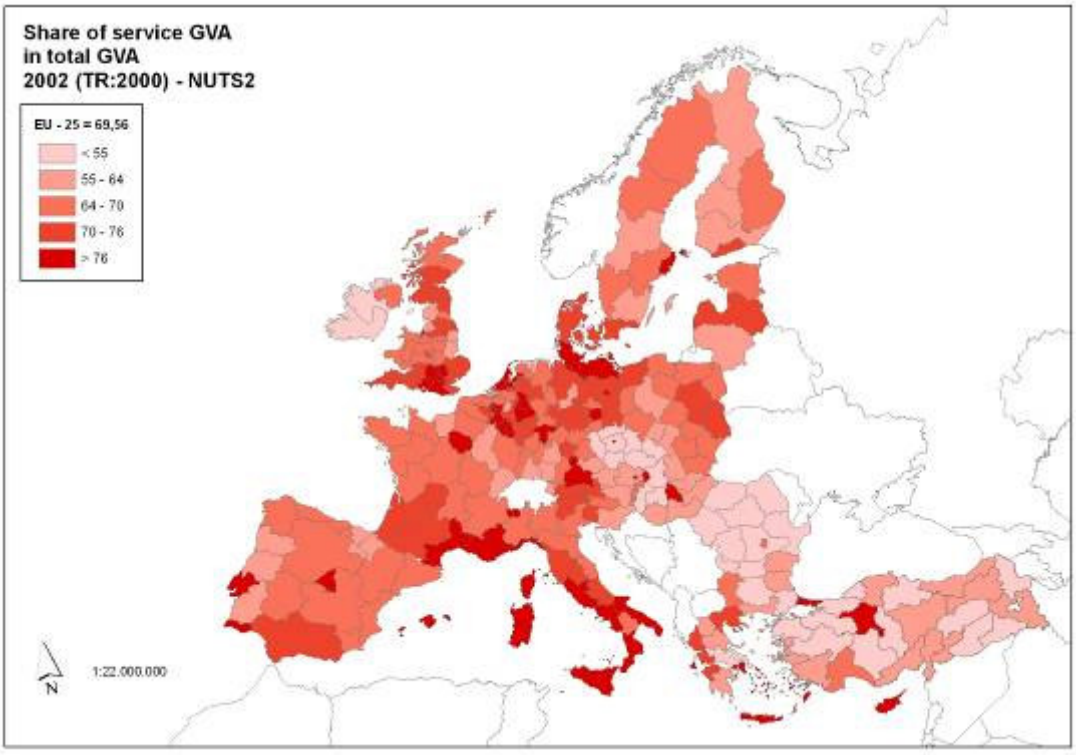


Figure 4.5 Share of Services GVA in Total GVA

4.2.3. Employment

Employment in regions of the EU and accession countries shows very different features and this situation further reinforces the regional disparities. The employment characteristics in the regions of the Europe and their development can be monitored by using three different kinds of indicators, which are employment rate, the proportion of services, agriculture and industry in total employment and unemployment.

4.2.3.1 Employment Rate and Unemployment Rate

Employment rate represents persons in employment aged 15-64 as a percentage of the population of the same age group (The Eurostat Concepts and Definitions Database). As the Figure 4.6 shows, in 2003, this employment rate was generally lower in southern European regions and the regions of new Member States except for

Baltic countries and some regions in Romania, when compared with the former EU-15 Member States. In the former group, regions in which the employment rate exceeded 70% in 2003 can be found in the Netherlands, Finland, Sweden and the UK. Denmark also had an employment rate above this level. In addition to that, regions in which employment rate exceeded 64% are generally in France except for north-eastern part, southern Finland, southern and south-western Germany and Austria. The lowest employment rates are found in southern Italian, western Polish and almost all of the Turkish regions.

In summary, the southern regions of the former EU-15 countries, those of the new member states, and the accession countries including Turkey have significantly lower employment rates compared to the central and northern regions of the EU.

In the thesis, only ypouth unemployment rates are used for unemployment rates indicate the opposite of the employment rates, and there fore statistically mean the same thing. However, it is considered here as important to mention about unemployment rate, female unemployment rate and youth unemployment rate in order to present a broader picture of unemployment in the EU.

Unemployment is one of the key problems of the EU. It is measured as unemployment rate, which represents the unemployed persons as a percentage of the labour force. Unemployment rate was considerably high (above 16%) in eastern German, southern Italian, some Polish, Slovakian, and Romanian regions and in one Bulgarian region. In most of the Austrian, northern Italian, Slovakian, Irish, and southern Swedish regions together with most of the regions in Benelux Countries and in the UK, unemployment rate was below 4,5%. In the rest of the regions unemployment was around 7%.

In Turkey, unemployment rate is significantly high in south-eastern regions, and low in eastern and northern regions. In The rest of the country, unemployment rate is closed to EU average. However, this does not reflect the true situation given the absence of an unemployment benefit system and substantial under-employment. 50% of employment is said to be not declared and collective agreements cover only 35%

of those in officially declared jobs (European Commission, 2nd Report on Economic and Social Cohesion, 2001).

In the case of Italy, there were large disparities between southern and northern regions. In northern regions, the unemployment rate was below the EU average, whereas in southern regions it was significantly higher.

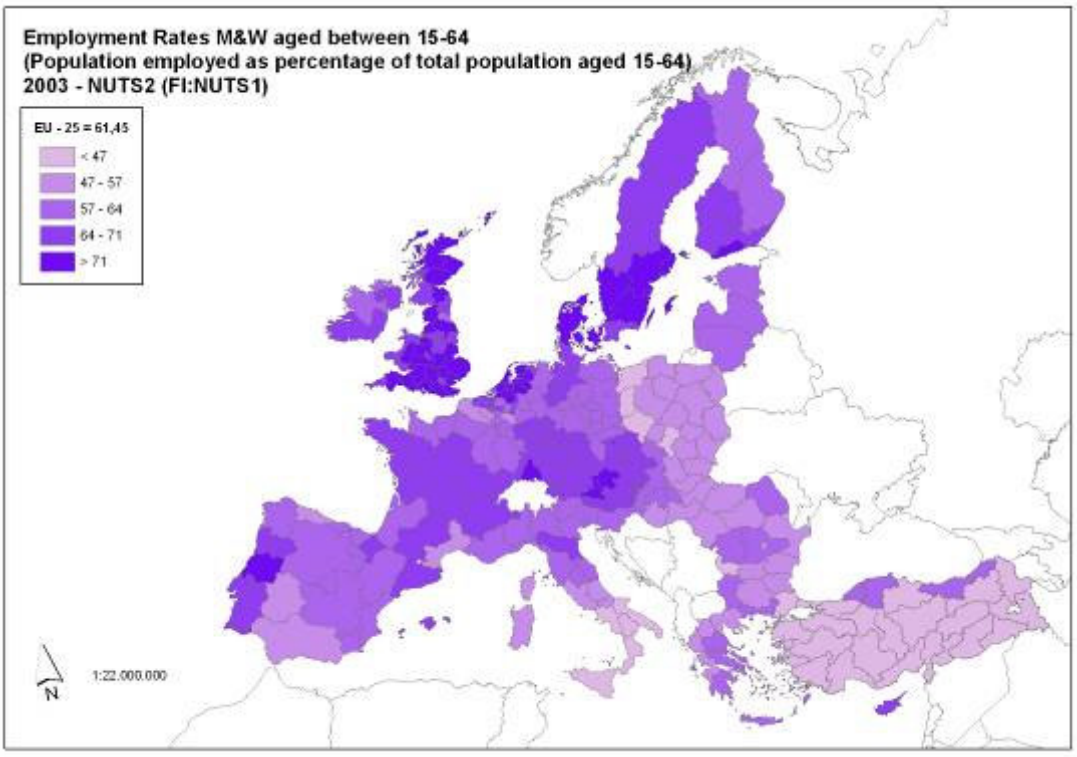


Figure 4.6. Employment Rates of Men and Women aged between 15-64, 2003

Female unemployment rate in 2002, was high (above20%) in most of the East German, Polish, northern Slovakian, Greek, Spanish, Bulgarian, and southern Italian regions. Also, in a few regions in France, one region in Spain and one in Belgium, this rate was higher then the EU average. Below 5% female unemployment rates was recorded in most of the regions in Austria, the UK, Sweden, Netherlands, Ireland, Denmark, Luxembourg, Germany, Belgium, Cyprus and Check Republic. Youth unemployment rate, which represents unemployed persons aged 15-24 as a

percentage of the economically active population of the same age group, was again high (above 40%) in some Polish, northern Slovakian, Bulgarian and southern Italian regions, whereas it was below 10% in Denmark, Germany, Ireland, Luxembourg, Austria, and the Netherlands. Long-term unemployment rate, on the other hand, which represents persons unemployed for one year or longer, as a percentage of the sum of those unemployed for less than one year and those unemployed for one year or longer, was high (above 65%) in 2002, in some Bulgarian, Italian, Greek, Slovak and Polish regions, whereas it was relatively low in many of the Swedish, Austrian, and British regions.

In short, when unemployment rates in the EU regions are examined, a clear east-west distinction stands out; western regions of the EU are characterised with low unemployment rates, whereas eastern regions have generally higher then average unemployment rates.

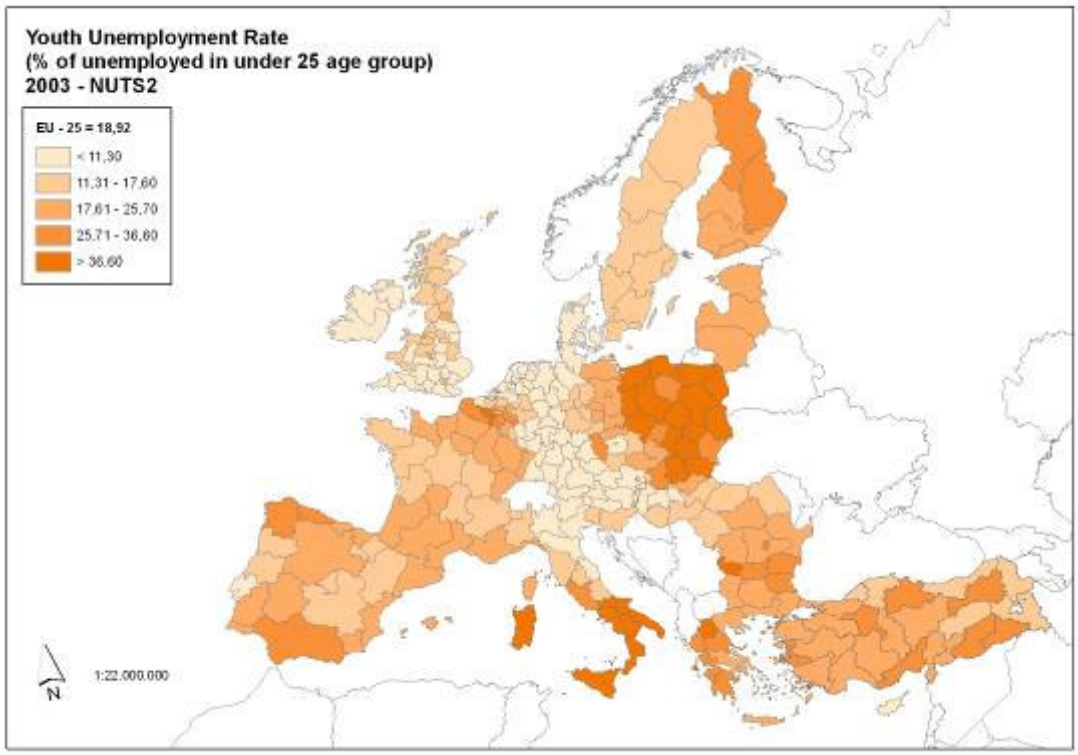


Figure 4.7 Youth Unemployment Rate, 2003

4.2.3.2 Sectoral Composition of Employment

In general, as put forward in the section regarding the economic structure of the European regions, the EU economy today is heavily reliant on services, while the importance of manufacturing and agriculture is tending to decline. This shift towards the service sector is likely to continue, while agriculture and manufacturing will continue to experience consolidation of production in higher value added activities and a fall in output and employment in others (European Commission, 2nd Report on Economic and Social Cohesion, 2001). In this section, composition of employment in the European regions is tried to be described, by considering three sectors; agriculture, industry and services.

Figure 4.8 shows the share of agriculture in total employment. As can be seen on the map, people in the eastern countries of the EU tend more often to be employed in agriculture. In 2000, the highest proportions of agricultural employment were seen in all of the Turkish regions except for Istanbul, Ankara, Izmir, Kocaeli, Bursa, and Adana, and in Romanian regions Sud-Vest and Nord-Est (above %52). Other high rates are found in eastern Polish regions, and in certain regions of Greece, Bulgaria and Romania. Correspondingly, there were a few regions in the rest of the EU where agriculture comprised more then 15% of total employment, and these are certain Portuguese regions, one Spanish region and one Italian region. In the rest, especially in eastern French, German and northern Italian, UK, and Swedish regions, however, proportion of agriculture is below 5%.

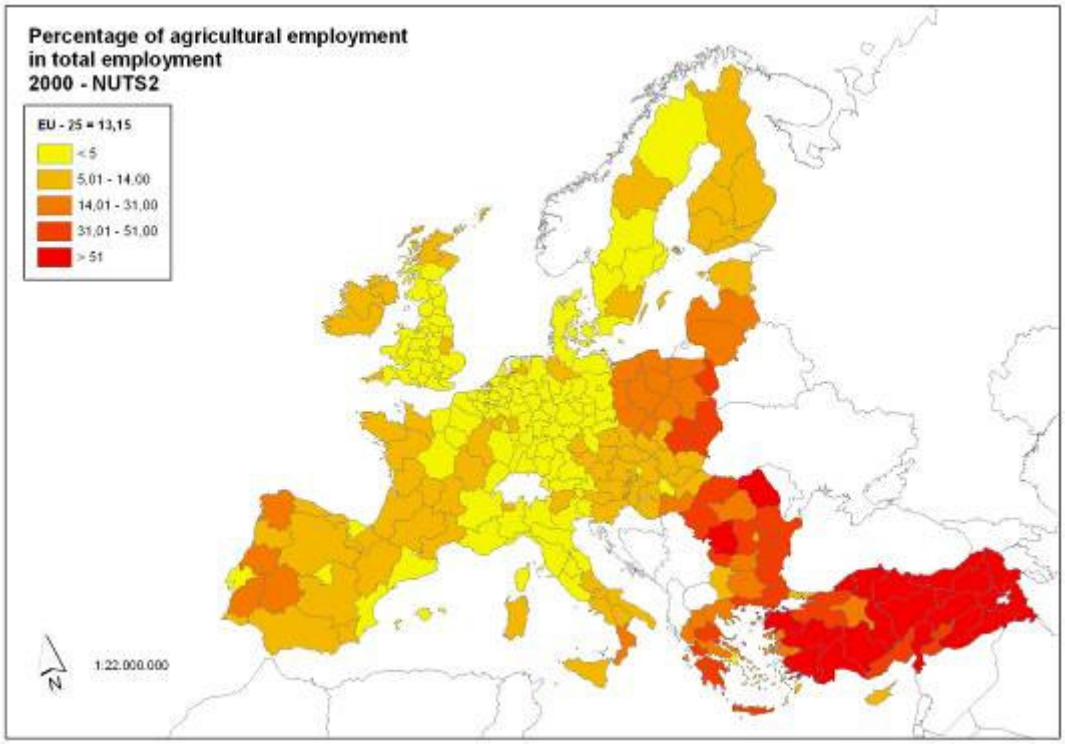


Figure 4.8 Share of Agricultural Employment in Total Employment, 2000

Figure 4.9 shows the share of industry in total employment. As seen on the map, in 2000, industrial employment was considerably high (above 34%) in many of the regions in the new member states. These regions, together with those of Romanian and Bulgarian regions, are generally more heavily industrialised than the EU average. The main reason of this is the declining share of industry, mainly manufacturing and increasing share of services in the rest of the union. The highest shares of industry in employment are seen in Germany, northern Italy, Irish, Finnish, Check, Slovak, western Hungarian regions, Estonia, Slovenia, and a few regions in Spain and Portugal. In the rest of the EU, especially in southern Portugal, Spain, France and Italy, UK, and Benelux countries, share of industry is well below the EU average. In almost all regions of Turkey, except for Istanbul, this share is significantly lower then almost all other regions.

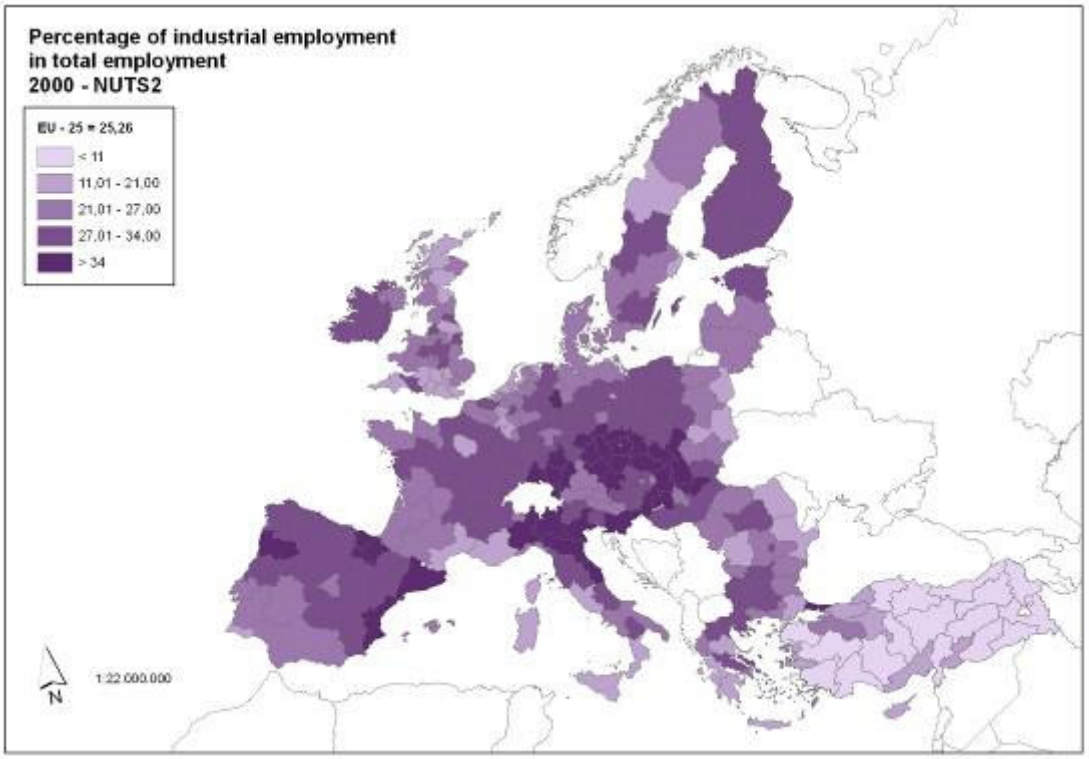


Figure 4.9 Share of Industrial Employment in Total Employment, 2000

Figure 4.10 shows the share of services in total employment. Share in service employment shows clearly the differences between the former EU-15 Member States and the New Member States. In 2002, at national level this indicator varied in the former EU-15 Member States from 60 to 77.9 % (except Portugal (53.8 %)). By contrast, in the new Member States and also in Bulgaria and Romania this share was below 60 % (except in three countries — Cyprus (71.6 %), Malta (66.1 %) and Estonia (61.7 %)) (Eurotat, Regions: Statistical Yearbook, 2004). In the former EU-15 regions, the share of services is high especially in urban regions like London, Paris, Rome, Lisbon, Madrid, Stockholm, and Brussels. In these regions, more then 75% of the labour force is employed in service sector. Another group of regions that have a particularly high concentration of services are the coastal regions of the Mediterranean, with a band stretching from Algarve in Portugal, via Andalucía, Provence-Alpes-Côte d'Azur, Lazio and Campania, to Calabria in the south of Italy. In addition, in Corsica and Sardinia, services sector has a high share in employment.

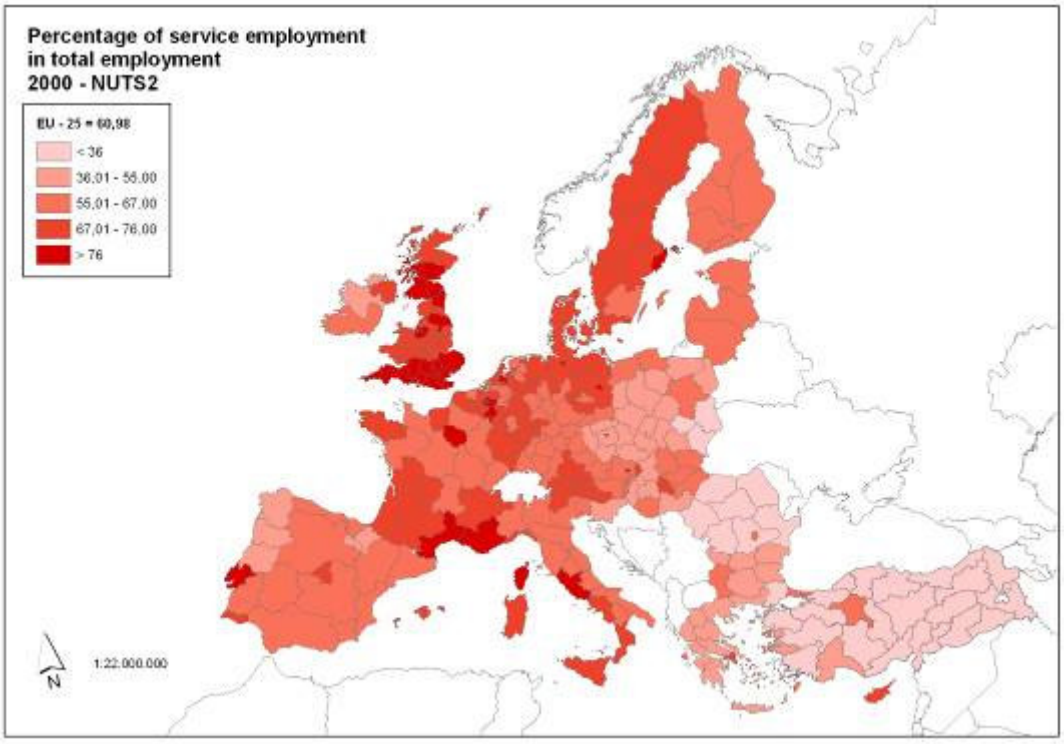


Figure 4.10. Share of Services Employment in Total Employment, 2000

There are also regions in the new Member States where services comprise a relative high proportion of employment. The capital region of Prague in Check Republic, Hungarian region of Budapest, the capital region of Bratislava in Slovakia, Polish region of Zachodniopomorskie, Bulgarian region of Yugozapaden and the capital region of Bucherest in Romania are examples of such regions. The situation in Turkey is similar to accession countries, especially Romania in this respect. Share of services is much below the EU average in most of the Turkish regions except for Istanbul and capital region Ankara.

In addition to this overall picture, there are regions or countries that totally contrast with each other, or that possess contrasting features within themselves. For example, the German economy, which traditionally focuses on manufacturing, contrasts with the UK economy, which is to a greater extent geared to services. This national generalisation broadly applies at local level in these two countries as well, but there are a few UK regions, most of them in the centre and west (such as Leicestershire,

Rutland and Northamptonshire, and West Wales and the Valleys), which are almost as industrialised as German regions. Also, in Spain, France and Italy, there is a sharp contrast between a very highly industrialised area in the north, and the south which is more geared to services. In France, the Languedoc-Roussillon and Provence- Alpes-Côte d'Azur are very service intensive regions. Belgium, the Netherlands and the north of Sweden also have very service-intensive regions. In the Netherlands, in particular, there is a great deal of commercial and transport activity around the ports of Amsterdam and Rotterdam, i.e. in the Noord-Holland and Zuid-Holland regions (Eurostat, Regions: Statistical Yearbook, 2003).

There are also unique sectoral patterns in the EU. For example, pattern of employment in France is very different then other EU countries. Employment in services is particularly evident around the capital, whereas this share is much low in the rest of the country. This high proportion of services in the Île-de-France region is due to the marked concentration of the population in that region, with the major industrial areas now being some way from the capital (Eurostat, Regions:Statistical Yearbook, 2003).

4.2.4. Population

The population structure of the EU and the accession countries except for Turkey is characterised by low or negative population change rates, or low fertility rates, and an ageing population. The situation in the Turkey however, contrasts with the general trend in the EU in each aspect.

When economic activity rates are considered, which indicate the labour force as a percentage of the population of 15-64 age group, again a clear east-west distinction occur. Economic activiy rates are lower in the regions of the New Member States and accession countries then the central, western and northern European regions, as shown on the Figure 4.11. The regions with the lowest economic activity rates are located in Turkey and southern Italy. On the other hand, in the northern European regions, especially in British, Swedish regions together with the Regions of Benelux countries and Denmark, economic activity rates are above average.

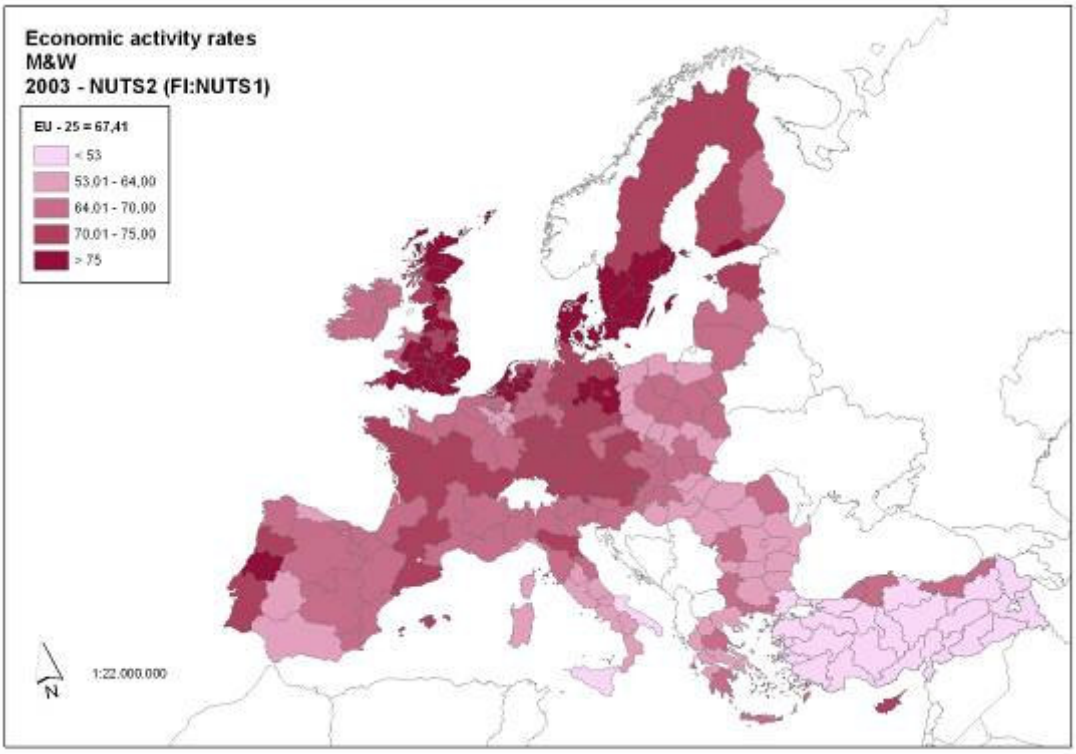


Figure 4.11. Economic Activity Rates, 2002

Figure 4.12 shows the total population change rate in the EU and accession countries in the period 1996–2000. In this period, the relative total population increase was negative in more than one quarter of the regions in the EU-25 (59 out of 211) and nearly 70 % of the regions in the accession countries except for Turkey (38 out of 55). The overall population increase for the EU was 1 %; for the other 12 countries, there was an overall decrease of 2.1 %. The five regions with the strongest relative population increase during this period were: Flevoland in the Netherlands , Islas Balearas and Canarias in Spain, Luxembourg and Uusimaa in Finland. The five regions with the fastest relative population decrease during this period were: Alentejo in Portugal, Halle, Dessau and Magdeburg all in Germany and Mellersta Norrland in Sweden. In Turkey, on the other hand, a relative high population increase has been observed in almost all regions in the same period.

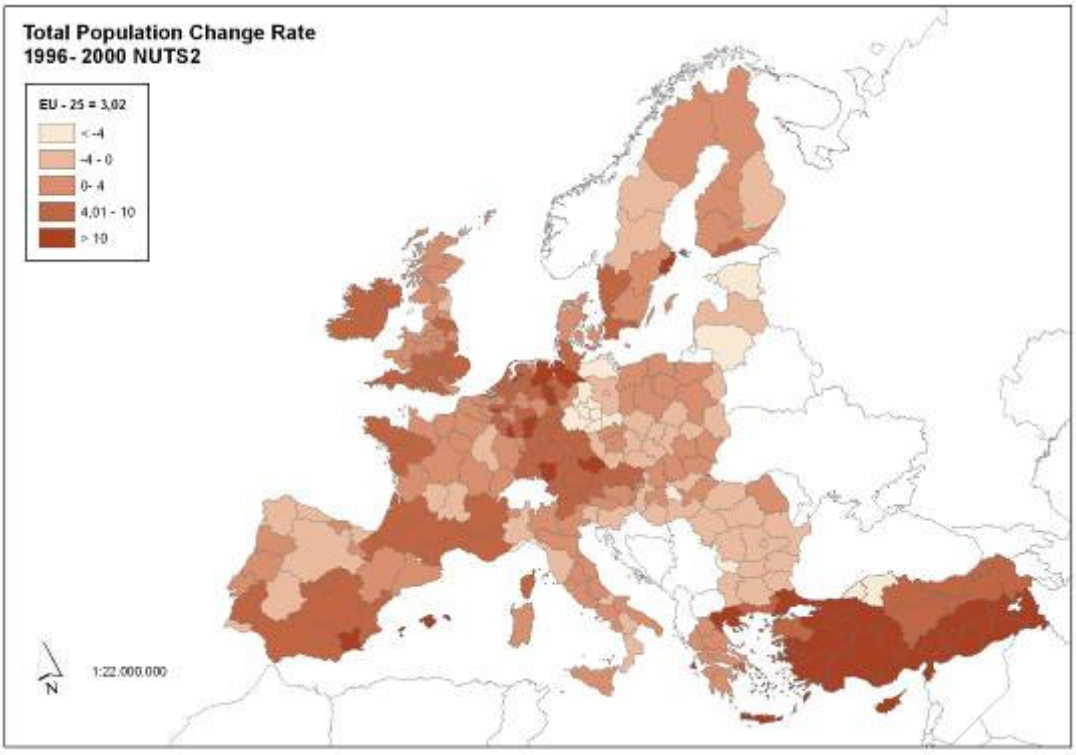
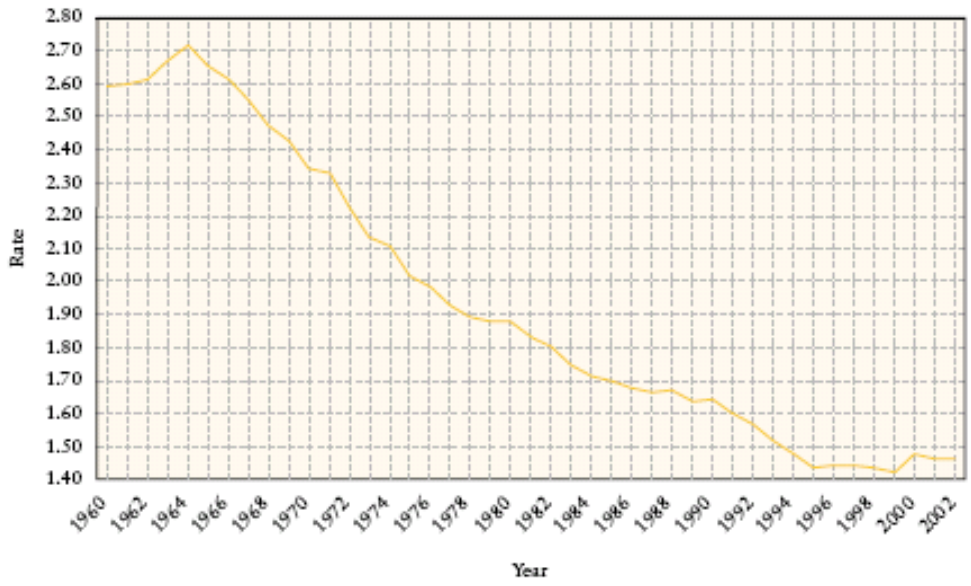


Figure 4.12. Total Population Change Rate

Another important explanation for the changing population structure in the EU is fertility rates. Table 4.4 shows the change in the total fertility rate in the EU-25 since 1960. The total fertility rate represents 'the mean number of children that would be born alive to a woman during her lifetime assuming that her reproductive pattern during each of her childbearing years was the same as the overall fertility rate for women of that age in that specific year' (Eurostat, Regions: Statistical Yearbook, 2001). As can be followed on the graph, fertility rates began to decrease after 1964 and this trend continued until now.

Table 4.4 Population Change Rates in the EU (Source: EUROSTAT)



Population density indicates the number of inhabitants per square kilometer. In 2002, average population density in the EU and accession countries was 317,8, as shown on the Figure 4.13. In general, the most densely populated regions at the national level are those containing the capital of the country. Examples in the EU are Inner (and Outer) London, Brussels, Vienna, Berlin, Stockholm and Uusimaa (including Helsinki). Examples in the New Member States are Prague and Buchrest. However, there are exceptions too. In Italy, Campania has the highest density at 420,3, while Lazio (including Rome) has only 298,2. With regard to the New Member States, Lubuskie in Poland has the highest density at 385,7, while the region Mazowieckie, in which Warsaw is situated, has only 111,2 inhabitants per km2. In Turkey, İstanbul has the highest population density, 1928 inhabitants per km², whereas the capital Ankara has only 163 inhabitants per km².

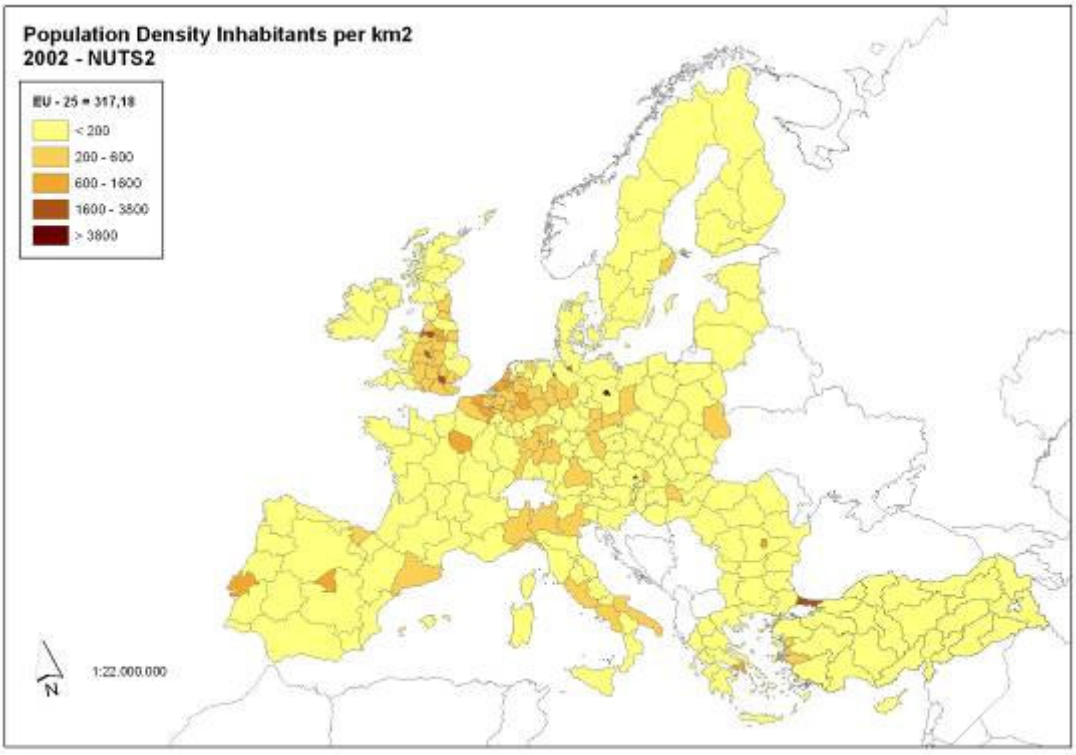


Figure 4.13. Population Density, 2002

Ageing population is another feature of the EU's population structure. Population of working age will begin falling over the present decade in all four southern Member States, Germany and most of the accession countries.On the latest projections, the number of people aged 15 to 64 is projected to be 4% smaller in the EU15 in 2025 than in 2000 and in the new member states and accession countries except Turkey, 10% smaller. Parallel to this decline, there will be a substantial growth in the number of people of 65 and over. By 2025, there will be 40% more people than now beyond retirement age in the present EU, Romania and Bulgaria. Figure 4.14 shows the percentage of people aged between 0 and 15 in total population in 2000. The map reflects a clear distinction between Turkish regions and the EU in terms of proportion of young population. In all Turkish regions and only in one Irish region in the EU, the proportion of young population was above 31%. In Polish, and some French, Slovak, and Romanian regions, as well as in Latvia and in a few regions of

the UK, this ratio is above 26%. And in all the test of the regions the ratio is below 23%.

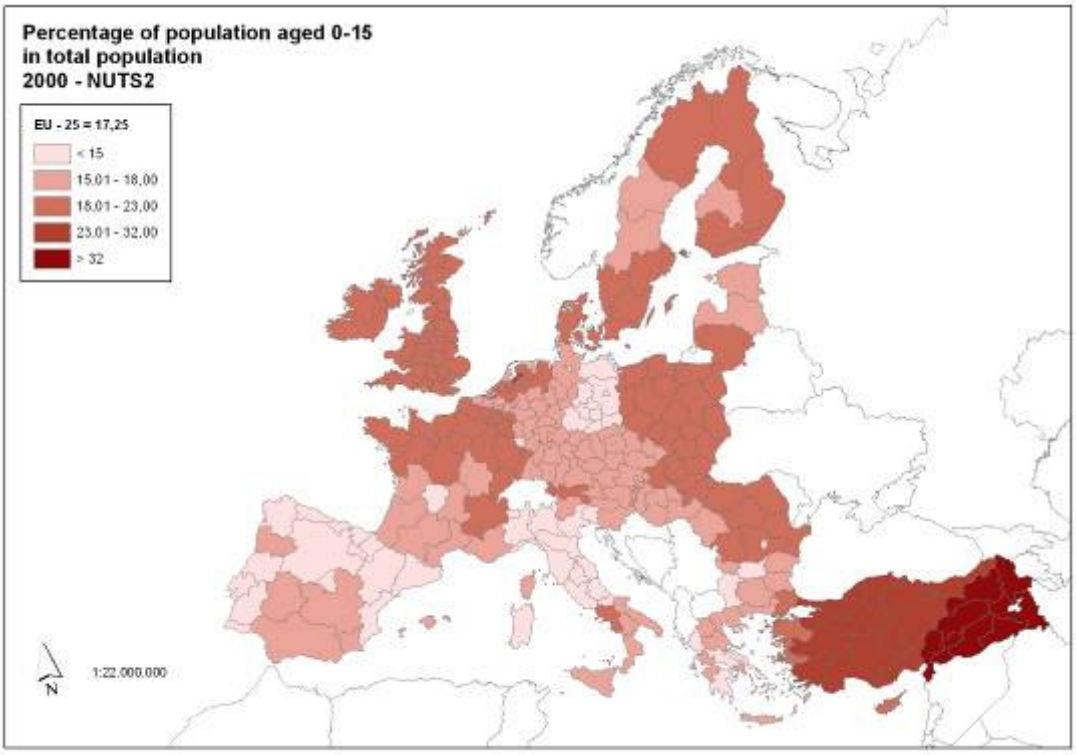


Figure 4.14. Percentage pf Population Aged 0-15 in Total Population, 2000

4.2.5 Welfare Indicators

European Commission defines welfare as an index of well-being. It refers to the human condition whereby people are prosperous, in good health, at peace and educated well. Those that regard health among these conditions do not differ significantly in the EU-25, especially when compared to other issues. However, when the regions in the New Member States and accession countries are also considered, disparities widen. Education indicators are another quantifiable component of welfare indicators. The educational attainment of the population in the regions is taken up in the next chapter that regards human capital.

There has been a steady increase in the number of practising doctors in most Member States over the past 20 years (Eurostat, Regions: Statistical Yearbook, 2003). In

1999, Greece reported rates above 400. In Belgium, Germany, Austria, Luxembourg and France, there were over 300 practising doctors per 100 000 inhabitants. In the Netherlands and the United Kingdom, the rates were below 200, but the figures for Ireland and the United Kingdom refer only to doctors working in the National Health Service (Eurostat, Regions: Statistical Yearbook, 2003). For this reason, they are not strictly comparable. In the EU-25, in 2002, the number of doctors qualified to practise varied from 154 per 100 000 inhabitants in Romania to 720 per 100 000 in Italy. The range becomes much higher when accession countries are also considered; from 37 in Turkey to 720 in Italy. Figure 4.15 shows the number of doctors per 10000 inhabitants in the European regions. In some Member States, the rate is fairly uniform from one region to another, while in some other countries it varies. For example, in Romania and Turkey, this variation is considerable. In metropolitan areas such as Île-de-France, Lazio, Brussels, Athens, Vienna, Prague, Bratislava, Berlin and Hamburg the number of doctors per 100000 inhabitants are high (above 375). The lowest figures are in areas with low population density, like in eastern Turkey. In most Italian regions and in northern Spanish regions, there is a high density of medical staff and these regions are net 'exporters' of doctors to other regions, in particular to the UK (Eurostat, Regions: Statistical Yearbook, 2003).

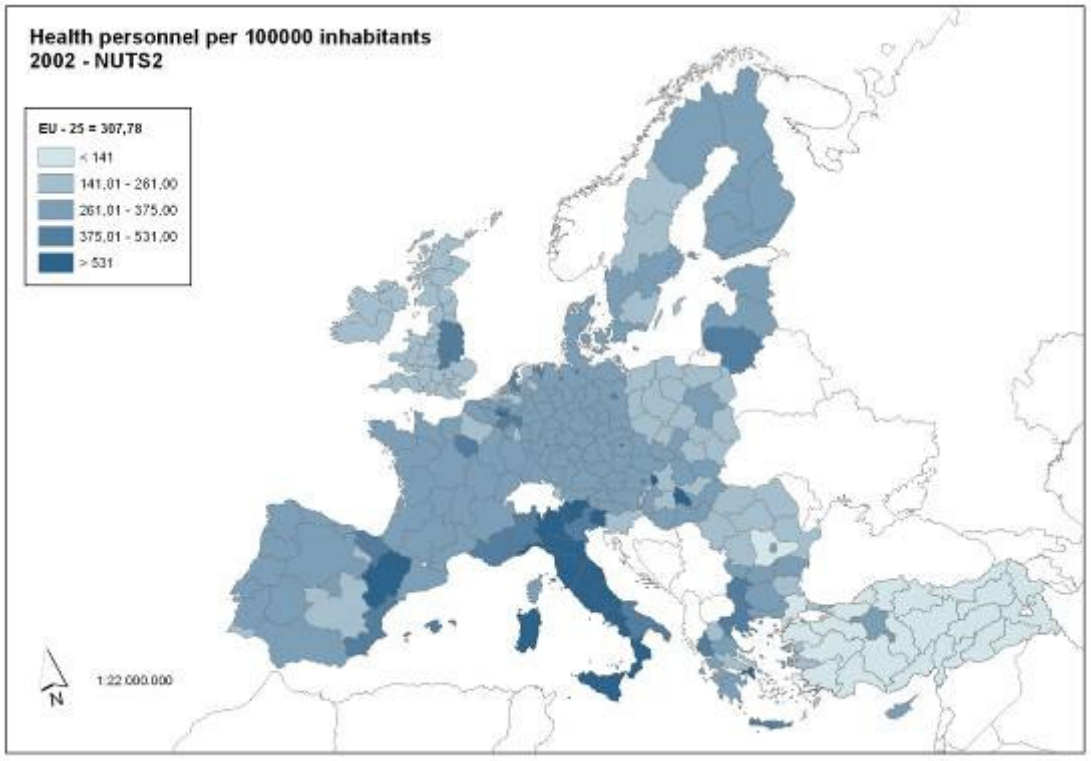


Figure 4.15. Number of Health Personnel (Doctors) per 10000 Inhabitants, 2002

Figure 4.16 shows the number of hospital beds per 100000 inhabitants. The number of hospital beds per capita shows a quite different trend. Over the period 1980–2000, the number of beds declined sharply in most Member States (Eurostat, Regions: Statistical Yearbook, 2003). In 2002, the number of hospital beds in the regions of EU and accession countries varied from 66,8 per 100 000 inhabitants in Turkey to 2013 per 100 000 in Bulgaria.

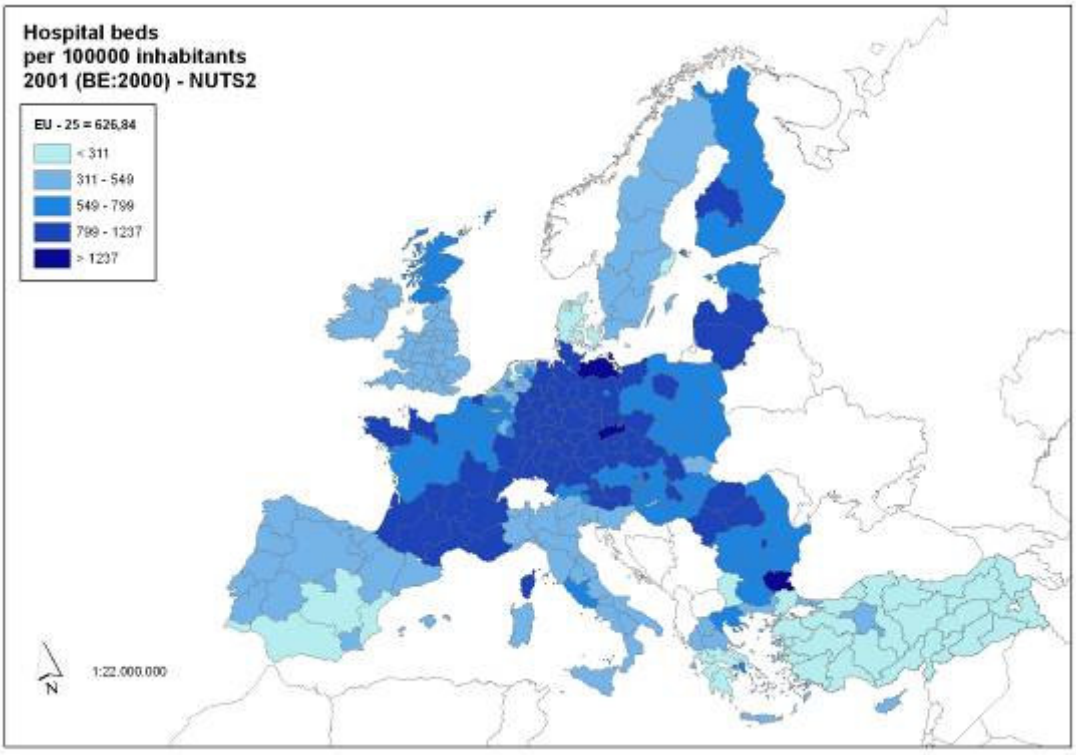


Figure 4.16. Number of Hospital Beds 10000 Inhabitants, 2001

Number of private cars per 10 inhabitants, on the other hand, very much depends on the income per capita in the regions. In 2001, the lowest values are recorded in most of the Turkish regions (below 1). The regions in the accession countries, the New Member States and southern European regions followed them (between 1 and 3). In the rest of the Europe values changed between 4 and 5.

4.2.6 Endogenous Growth Dynamics

Endogenous sources of growth in regions are considered to be mainly as human capital and innovative capacity. In fact, they are not distinct concepts, but closely interrelated in the way that, without the existence of human capital innovative capacity cannot be created or enhanced. In recent years, there has been increasing recognition of the importance of human capital as an engine of growth and it became very important to see to what degree the countries, and regions, have the capacity to turn the human potential into innovative practice. However, there are significant

disparities between regions in terms of level of human capital and resurrecting their human potential in the form of innovative capacity.

Figure 4.17 shows the percentage of the population aged between 25 and 64 who have a third-level education. As in previous years, in 2000 some countries again show a concentration of highly educated inhabitants in the capital regions when compared to the rest of the country. Examples include Berlin in Germany, Madrid in Spain, Paris in France, London in the UK, Stockholm in Sweden, and Athens in Greece. High levels of population who have a third-level education are also noticeable in all Finnish regions, in the regions of the former East Germany, Benelux countries, and in the other regions of the UK and Sweden in addition to their capital regions. In the new Member States, this rate is considerably lower then the average of former EU-15 Member States. Only in all of the Bulgarian regions, Estonia and Lithuania a high percentage of population have high education levels. In almost all of the Turkish regions, this level is considerably lower then the EU average. Only in Ankara more then 15% of the population is highly educated.

In an increasingly knowledge-based economy, innovation holds the key to regional competitiveness (European Commission, 3rd Report on Social and Economic Cohesion, 2004). However, the capacity to innovate, access to knowledge and exploit it varies between regions in both the existing and the new Member States.

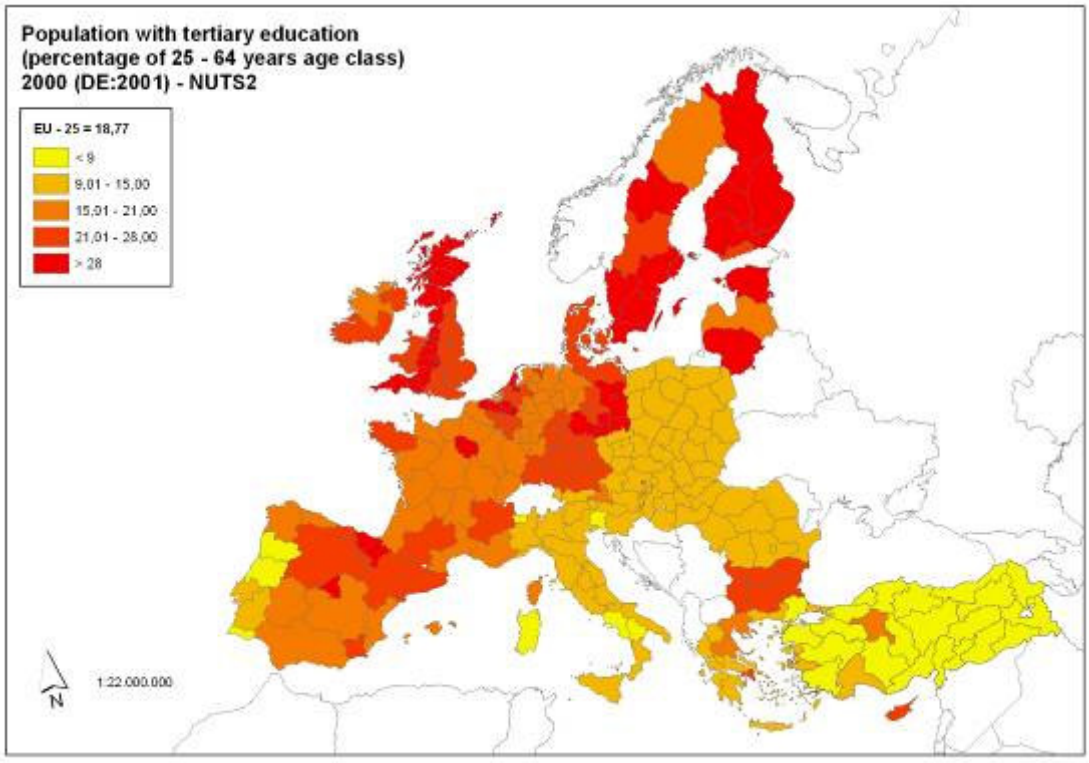


Figure 4.17. Population with High Education Level (Percentage of 25-64 Age Class), 2001

Figure 4.18 presents the situation of R&D expenditures in European regions in 2002. The leading regions of the EU are Braunschweig and Köln in Germany and some other southern German regions, Vienna and Steiermark in Austria, all Swedish regions, almost all Finnish regions, Paris and Midi-Pyrénées in France, Noord-Brabant in the Netherlands, and the southern regions of the UK. The highest rates in the New Member states, which is between 1-2% are recorded in Budapest in Hungary, in four regions of Poland, in Slovenia and in south-west region of Bulgaria. In Centro in Portugal, in Madrid and two northern regions in Spain, in some western and northern regions of Greece, in some southern regions of France and in all Belgian regions, rates between 2-3% are recorded. In all other regions of the EU including, which corresponds more then half of the total number of regions, this rate is below 1 %. In short, very low rates are recorded in almost all southern European regions and the regions of the Member States and the accession countries.

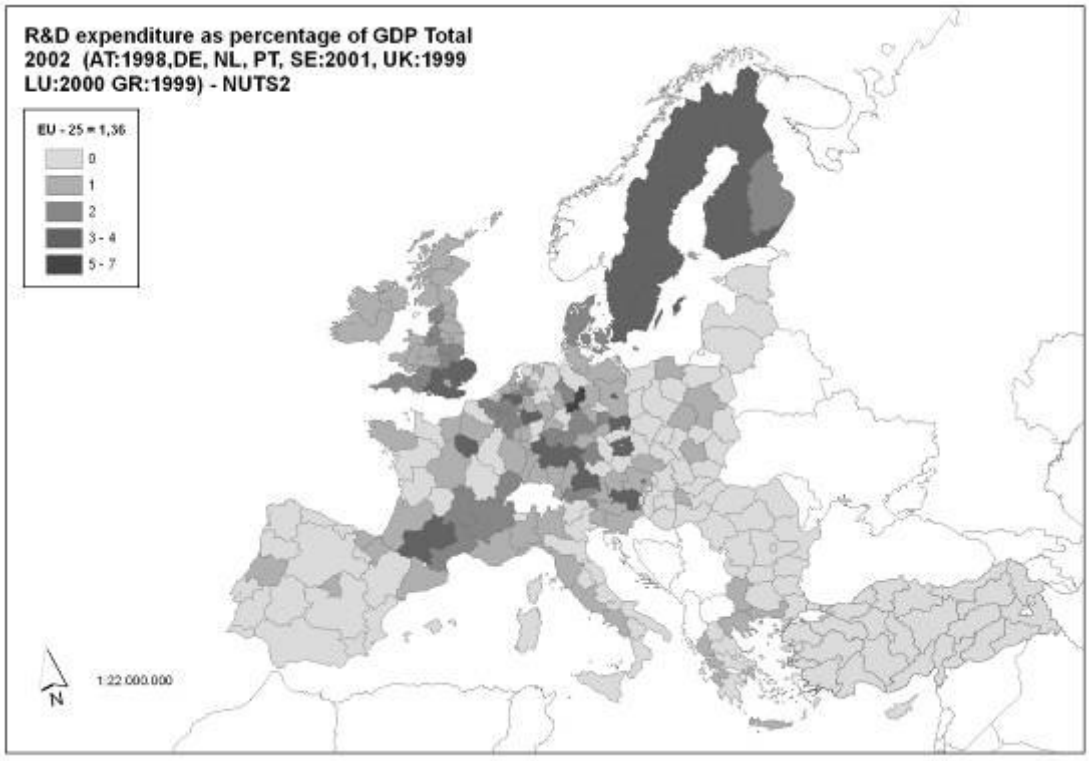


Figure 4.18. R&D Expenditure as a Percentage of Total GDP, 2002

Development of R&D expenditure in total GDP in terms of percentage change in a time interval is high mainly in Scandinavian regions, together with some German, French, British, Belgian and Dutch regions. In the period from 1999 to 2000, Swedish regions recorded above 70% percentage changes Also, in most of the regions where initial R&D expenditures are low, high percentages changes were recorded in the same period (above 10%).

R & D personnel data are represented in Figure 4,19, which shows the percentages of active population. In 2001, the leading region was Stockholm, with 3,72, followed by Braunschweig (Germany), with 3,69; Oberbayern (Germany) and Prague, with 3,43; and Vienna, Uusimaa (Finland) and Île-de-France, with 3,14.

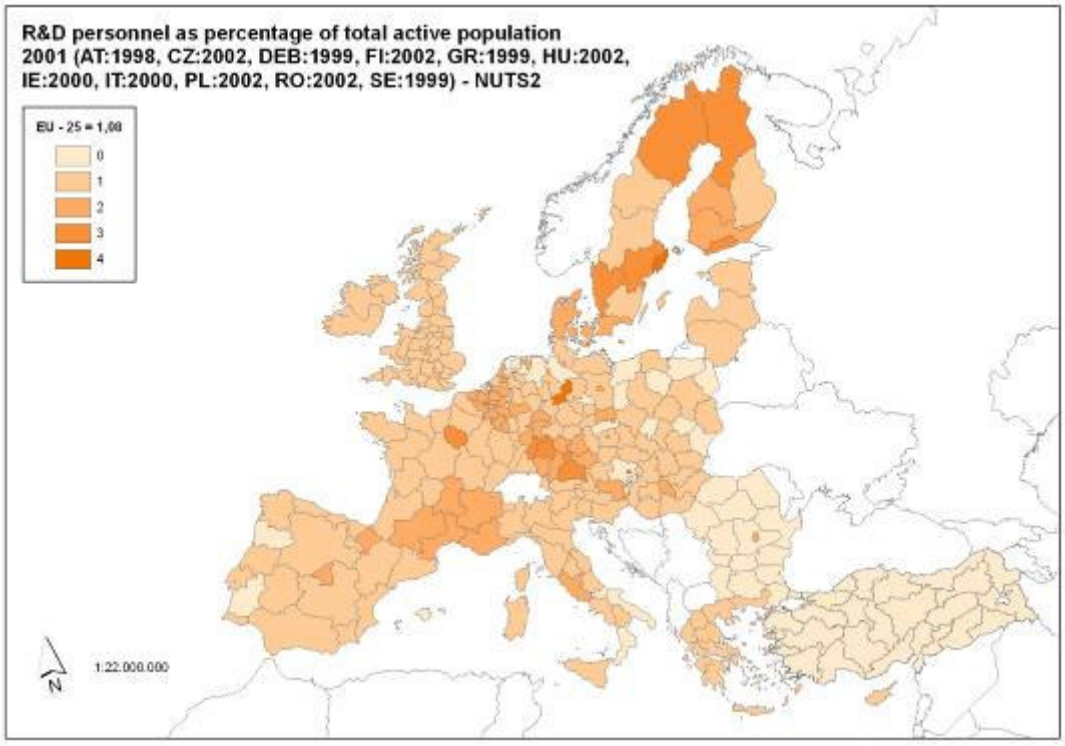


Figure 4.19. R&D Personnel as a Percentage of Total Active Population, 2001

Figure 4.20 present the patent applications to the EPO per inhabitant. As can be seen from the figure, when patents applications are considered, a very clear North-south distinction occurs in the former EU-15 territory. And, the situation in the New Member states is almost same with the southern former EU-15 countries. As the first map shows, all the regions in southern European countries and in the new Member states recorded less the 50 applications per inhabitant. On the other hand, the regions which recorded the highest numbers are in northern Sweden and Finland, Ireland, in Germany and France, Benelux countries, northern Italy and Austria.

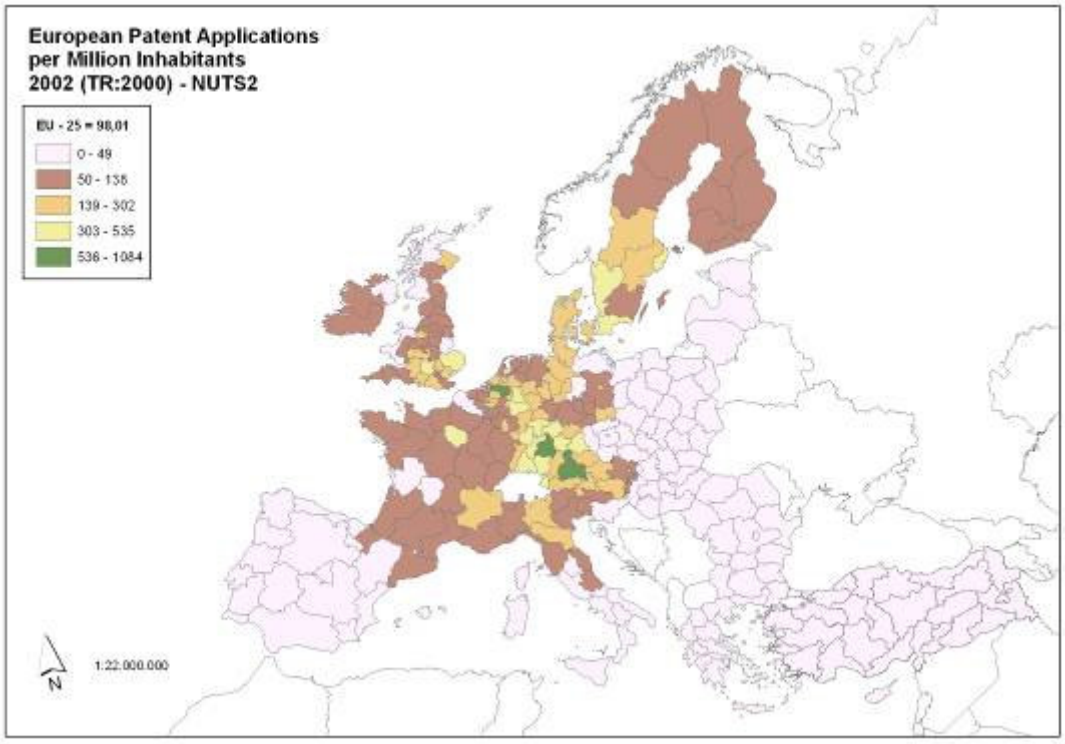


Figure 4.20. European Patent Applications, 2002

4.3. Periphery Based on Income and Income Growth Differentials

The most conventional definition of the periphery is made by using income differentials, as the review of the theoretical discussions has showed. In this section, it is aimed to classify the NUTS2 regions of the EU and the accession countries according to the income and income growth differentials between them. For this purpose, two indicators that demonstrate income differentials are used; GDP per inhabitant (GDPINH) and the growth of the GDP per inhabitant (GDPP).

8 clusters emerge as a result of the classification procedure. The geographical distribution of these clusters is displayed on Figure 4. 21. As the figure shows, there is a clear east-west and a north-south distinction in Europe in terms of income per inhabitant and its growth. The south, together with Greece and Cyprus, is characterised by middle income, while the regions in central and northern Europe have high income levels. The eastern regions, on the other hand, are characterised by low income levels. They further differentiate according to growth of GDP per inhabitant. The average values of included variables for each of the clusters are recorded in Table 4.5.

Table 4.5 GDP per Inhabitant and its Growth, final clusters for the included variables

CLUSTERS	GDPINH	GDPG
1. Semi-Periphery; middle income – high growth	13533	5,79
2. Core; high income - high growth	24138	6,13
3. Core, very high income - medium growth	39247	4,71
4. Core; high income – low to medium growth	22731	3,73
5. Stagnant Periphery; low income - low growth or stagnation	2781	0,07
6. Less Dynamic Periphery; low income – medium growth	3482	4,60

Table 4.5 (Continued)

CLUSTERS	GDPINH	GDPG
7. Dynamic Periphery; low income - very high growth	4746	8,68
8. Regressing Periphery; low income – regression	1485	-6,58

3 out of these 8 clusters, namely cluster 2, 3, 4 can be considered as the core of the Europe in terms of income differentials. They are located in Northern and Western Europe. They all have high income per inhabitant. However, they differentiate according to growth of their income per capita. Most of these regions have medium level income growth rates, however, some of them, like Irish regions, have very high growth rates. Also, a European semi-periphery (cluster 1) stands out of this classification. They are generally southern regions located in Spain, Portugal, Italy and Greece. They have middle income levels and high income growth levels.

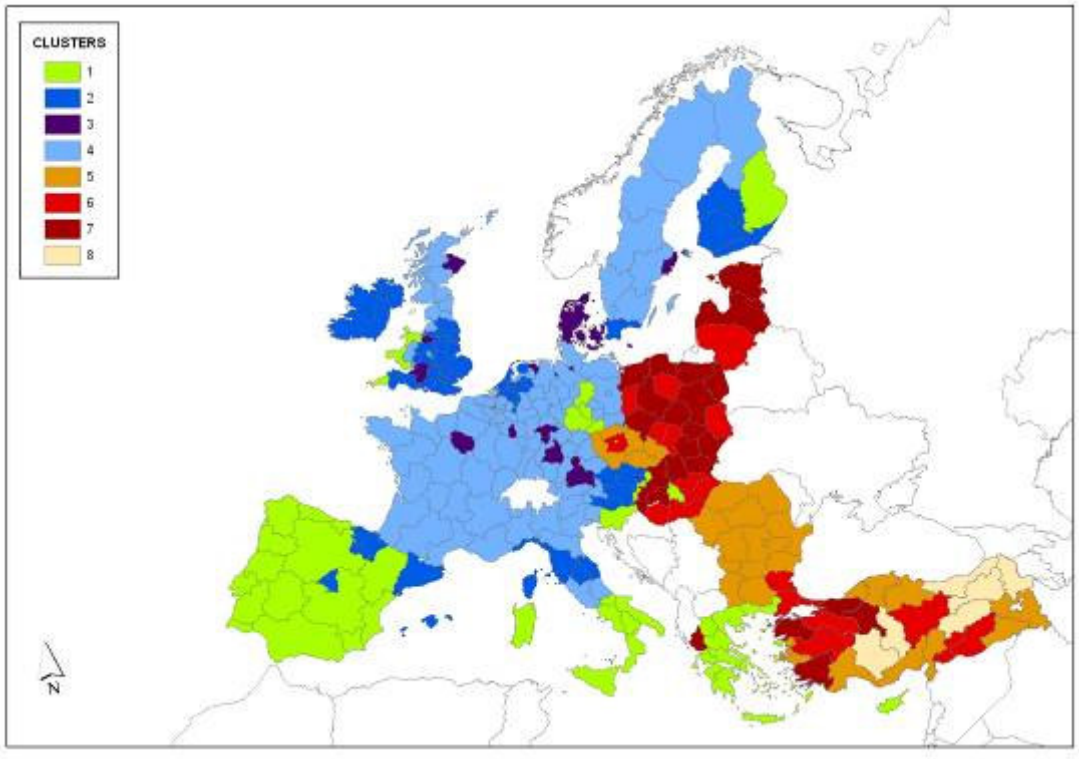


Figure 4.21. Classification of European Regions Using Income and Income Growth Differentials

The rest of the clusters, namely cluster 5, 6, 7 and 8 represent the four different peripheries of the Europe in terms of income differentials. They are located mainly in the New Member States and accession countries. They all have low income levels, and differentiate according to income per capita growth rates. Most of the regions in the New Member States and some western Turkish regions have enjoyed very high growth rates in their income per capita, and they represent the dynamic periphery. On the other hand, economic growth is low or at medium levels in most of the regions of accession countries, which represent the stagnant and less dynamic peripheries respectively. Regressing peripheral regions are located only in Turkey and they have negative economic growth rates. The main features of each of these clusters are discussed in more detail in the below sections

Cluster 1: Semi-Periphery; Middle Income, High Growth

There are 50 regions in this cluster, which are characterised by middle income and high income growth. They are located in western, north-western and south-eastern Spain; Portugal; southern Italy; and Greece. One eastern Austrian region, Cyprus, a few eastern German regions, Prague, Bratislava and Slovenia also belong to this cluster. They have middle level income per inhabitant (GDP=13533 Euros), ranging between 9008 and 19025 Euros. Growth of the GDP per inhabitant is, on the other hand high (GDPG=5,8%). This cluster corresponds with the group of 'peripheral dynamic regions' and 'peripheral less dynamic regions' in the grouping study of Rodríguez-Pose (1999), in which he groups the former EU-15 NUTS2 regions according to their nationally weighted mean annual growth and nationally weighted GDP per capita in 1980. However, when compared with the regions of New Member States and accession countries, it would be more appropriate to call these regions as semi-peripheral. In addition, these regions have generally higher growth rates then the peripheral regions of the cluster 6.

Cluster 2: Core; High Income, High Growth

This cluster includes 52 regions, characterised by high income and high income growth rates. They are located mainly in eastern Austria; central and southern UK, the Netherlands, southern Finland, and north-eastern Spain. Mediterranean islands of France and Spain also belong to this cluster. These regions have generally high income per inhabitant levels (GDPINH=24138 Euros). There are a few middle income regions in Spain, the UK and Italy. In terms of growth rates of GDP per inhabitant, the regions in this cluster are very similar to those in cluster 1 (GDPG=6,13%).

Cluster 3: Core; Very High Income, Medium Growth

This cluster includes 16 regions, characterised by very high income levels and medium income growth rates. They are Vienna, Brussels, Île-de-France, Stuttgart, Hamburg, Oberbayern, Bremen, Darmstadt, Denmark, Luxembourg, Groningen, Stockholm, and Inner London, Cheshire, North-Eastern Scotland and Gloucestershire, Wiltshire and North Somerset in the UK. These are the richest

regions of the EU (GDPINH=39247 Euros per inhabitant), and are mostly capitals or large metropolitan regions. GDP per inhabitant ranges from 72290 Euros in Inner London to 30141 Euros per inhabitant in Gloucestershire, Wiltshire and North Somerset. The regions in this cluster have medium level growth rates of GDP per inhabitant (GDPG=4,71%). Only Inner London and Luxembourg have growth rates above 6%.

Cluster 4: Core; High Income, Low to Medium Growth

There are 92 regions in this cluster, which covers the largest area. The regions, which are characterised by high income and medium income growth rates, are located in western Austria; Belgium; Germany; northern Finland; France; northern and central Italy; Sweden; and the northern UK. They are characterised by high GDP per inhabitant and medium growth (GDPINH=22731 Euros, GDPG=3,73%). However, there are a few medium income regions in the cluster. These are the low income regions of Belgium, Germany and Italy.

Cluster 5: Stagnant Periphery; Low Income, Low Growth or Stagnation

There are 28 regions in this cluster, characterised by low income and low or negative income growth rates. They are located in northern and eastern Bulgaria, Romania, Check Republic and western and central Turkey. GDP per inhabitant is low in these regions (GDPINH=2781 Euros), and ranges from 826 Euros in Van in Turey to 6023 Euros in Jihozápad in Check Republic. Growth of GDP per inhabitant is, on the other hand, very low (GDPG=0,7%). Moreover, in some Bulgarian, Romanian and Turkish regions GDP per inhabitant has not grown, but decreased in the year 2000 and 2001 for which the values are calculated.

Cluster 6: Less Dynamic Periphery; Low Income, Medium Growth

There 19 regions in this cluster, that are characterised by low income and medium income growth rates. These regions are some of the Turkish and Polish regions; South-East in Bulgaria; central Check region of Střední Čechy; southern and north-eastern Hungarian regions; and Lithuania. They all have very low GDP per inhabitant (GDPINH=3482 Euros). However, there are also variations within the cluster. For example in Check Republic, Poland and Bulgaria, GDP per inhabitant

varies between 3000 and 5000 Euros, whereas it varies between 1200 and 3500 Euros in other regions. Growth of GDP per inhabitant in these regions, on the other hand, are at medium level (GDPG=4,6%).

Cluster 7: Dynamic Periphery; Low Income, Very High Growth

This cluster includes 23 regions, characterised by low income and very high income growth rates. They are located in western Hungary; Poland; Slovakia and western Turkey. Estonia, Latvia, and Iperios in central Greece, also belong to this cluster. These regions have generally low GDP per inhabitant (GDPINH=4746 Euros). The main feature of these cluster is very high growth rates of GDP per inhabitant (GDPG=8,2%). In Kocaeli in Turkey, Mazowieckie and Wielkopolsike in Poland, Iperios, and Nyugat-Dunántúl in Hungary, growth of GDP per inhabitant is significantly high (19%, 13%, 10%, 9,5%, 9,8% respectively).

Cluster 8: Regressing Periphery; Low Income, Economic Regression

This cluster includes 6 regions which are located in Turkey. These regions are Konya, Kırıkkale, Trabzon, Erzurum, Ağrı and Malatya. These regions have not only low GDP per inhabitant (GDPINH=1486 Euros), but negative growth rates of GDP per inhabitant (GGDP=-6,58%). For this reason they can be considered having experienced an economic regression.

4.4. Periphery Based on Economic Structure, Employment and Population Potentials

In this section, 287 NUTS2 regions of the EU and accession countries are classified according to their economic structure and, employment and population potentials, and homogenous groups of regions are formed. These variables that are made used of in the analysis are listed in Table 4.7.

Table 4.6 Indicators Used in the Analysis

CONCEPT	INDICATOR/PROXY
Economic Structure	(AGVA) Share of agricultural GVA in total GVA (IGVA) Share of industrial GVA in total GVA (SGVA) Share of service sector GVA in total GVA (MGVA) Share of manufacturing GVA in total GVA (CAGR) Percentage change in the share of agricultural GVA in total GVA (CIND) Percentage change in the share of industrial GVA in total GVA (CSER) Percentage change in the service sector GVA in total GVA
Employment and Population Potentials	(AE) Employment in agriculture as a percentage of total employment (IE) Employment in industry as a percentage of total employment (SE) Employment in services as a percentage of total employment (ER) Employment rates of men and women aged between 15-64 (Population employed as percentage of total population aged 15–64) (EAR) Economic activity rates (YUR)Youth unemployment rate (PD) Population Density (PC) Population Change Rate (YP) Population aged 0-15 as a percentage of total population

10 clusters emerge as a result of the classification. The geographical distribution of these clusters is displayed on Figure 4.22. As can be seen on the figure, a clear distinction between Eastern and Southern Europe and Western, Northern and Central Europe becomes evident when economic structures and employment and population potentials are considered. The rich west, north and centre have economies almost totally reliant on services and to some extent on industry; while in the poorer southern and eastern regions, agriculture has still high shares and the economies are subject to a structural change. However, almost only in Turkey, except for some western regions, this structural change is slow. The average values of included variables for each of the clusters are recorded in Table 4.7

Table 4.7 Economic Structure and Employment and Population Potential in European Regions, final clusters for the included variables

CLUSTERS	AGVA	IGVA	SGVA	MGVA	CAGVA
1. Core; Mixed Economy Regions	3,02	30,33	69,08	22,22	-11,89
2. Core; Industrial Regions	3,11	39,01	59,68	33,38	-24,68
3. Core; Densely Populated Urban Regions	0,12	19,10	81,90	12,50	-30,71
4. Core; Dynamic Service Regions	2,16	19,62	80,93	10,99	-22,61
5. Semi-Periphery; Regions of Stabilizing Structural Change	6,75	26,41	69,31	15,6	-26,58
6. Dynamic Periphery; Regions of Radical Structure Change	6,96	31,22	62,62	18,89	-31,68
7. Less Dynamic Periphery ; Regions of Structural Change	14,88	40,48	45,81	24,47	-23,55
8. Core ; Less Dynamic Service Regions	2,06	29,49	68,52	19,70	-40,91
9. Periphery with Development Potential; Regions of high Population Potential and slight Structural Change	11,07	32,29	60,14	24,53	-13,14
10. Stagnant Periphery; Stagnant Agricultural Regions	25,63	20,96	54,16	8,51	-14,28
CLUSTERS	CIGVA	CSGVA	AE	IE	SE
1. Core; Mixed Economy Regions	-7,05	4	4,16	27,75	67,33
2. Core; Industrial Regions	-0,06	1,09	5,88	35,82	58,30
3. Core; Densely Populated Urban Regions	-15,29	5,60	0,31	17,61	82,07
4. Core; Dynamic Service Regions	-8,97	3,22	4,14	20,40	74,74
5. Semi-Periphery; Regions of Stabilizing Structural Change	-4,34	4,89	14,79	26,18	59,03
6. Dynamic Periphery; Regions of Radical Structure Change	-19,50	15,28	24,66	28,66	46,38
7. Less Dynamic Periphery ; Regions of Structural Change	-18,10	40,26	44,60	21,00	31,36
8. Core ; Less Dynamic Service Regions	-11,55	8,96	2,94	23,93	74,16
9. Periphery with Development Potential; Regions of high Population Potential and slight Structural Change	-11,94	18,13	31,61	19,51	48,90
10. Stagnant Periphery; Stagnant Agricultural Regions	-11,89	18,72	61,07	6,99	31,94

Table 4.7 (Continued)

CLUSTERS	ER	EAR	YUR	PD	PC	YP
1. Core; Mixed Economy Regions	65,62	71,50	13,54	208,18	2,14	16,64
2. Core; Industrial Regions	66,58	71,29	12,87	127,51	3,94	16,94
3. Core; Densely Populated Urban Regions	64,44	71,08	17,64	3934,7	1,32	17,90
4. Core; Dynamic Service Regions	66,06	70,64	15,07	378,46	6,89	17,32
5. Semi-Periphery; Regions of Stabilizing Structural Change	54,8	62,27	28,96	117,33	1,37	15,83
6. Dynamic Periphery; Regions of Radical Structure Change	52,87	64,05	36,98	144,03	-0,58	18,16
7. Less Dynamic Periphery ; Regions of Structural Change	55,93	60,60	18,09	85,56	-1,70	19,56
8. Core ; Less Dynamic Service Regions	72,25	75,82	11,83	269,42	3,16	19,69
9. Periphery with Development Potential; Regions of high Population Potential and slight Structural Change	44,76	49,96	23,13	393,57	26,3	24,56
10. Stagnant Periphery; Stagnant Agricultural Regions	43,28	47,64	21,88	69,22	14,6	32,34

The first four clusters and cluster 8 can be considered as core the regions of the Europe, which have very low shares of agriculture in total employment and total GVA, and relative high employment and economic activity rates, together with low though positive population change rates. The first core cluster, namely Cluster 1, includes Central, Western and Northern European regions. In these regions, share of agricultural employment in total employment and total GVA is very low. Share of services is high, but the economy is not totally reliant on service sector, as share of industry in total employment and GVA is not low compared to service regions. Cluster 2 consists mainly of industrial regions located in central Europe. These regions have the highest share of industry in total employment and total GVA, when compared to the regions in other clusters. Cluster 3 consists of urban regions like Vienna, Brussels and Inner London which have the highest share of industry in total employment and total GVA, and very high population density when compared to the

regions in other clusters. Cluster 4 consists of dynamic service regions spread over western, southern and central Europe, where economy is totally reliant on services, but share of services does not increase significantly. However, when population features are considered, they have a dynamic structure compared to other core regions. Cluster 8 is made of less dynamic service regions located mainly in the UK. The economy of these regions is also reliant on service sector, though not as significant as in dynamic service regions. Also, share of services increase at a considerably high rate when compared to other core regions.

Cluster 5 represents the semi-periphery periphery of the EU; some southern European regions, Latvia, Estonia, some Hungarian, Bulgarian and Slovakian regions. Share of agriculture in total employment and total GVA is higher then in the first four regions, while being lower then in the last three clusters. In other words, they constitute a transition zone where the reliance on agriculture increases and that of service sectors decreases. Also, employment rates began to decrease in this transition zone.

The rest of the clusters can said to represent the four different peripheries of the Europe from the perspective of economic structure and, employment and population potentials. The first type is cluster 6, which consists of most of the Polish regions and some Bulgarian and Greek regions. These regions have been subject to a radical structural change in last years in the form of decrease in the share of agriculture and industry and increase in the share of services in the economy. Share of both industry and agriculture in total GVA have decreased significantly. Correspondingly, they have low employment rates and high youth unemployment rates. Second is the cluster 7, which consists of all Romanian regions except for Budapest, and Zonguldak in Turkey. These regions are subject to a structural change; share of agricultural in total GVA has showed a significant decrease in the period between 1995 and 2002, though not as significant as in cluster 6. However, share of agriculture in total employment and total GVA is still high when compared to core regions and cluster 6. Third type is the cluster 9, which consists of relative more dynamic Turkish regions where reliance on agriculture is less then in cluster 10. Also, these regions have very high population growth rates. For these reasons, they

are considered as having development potential. Fourth type is Cluster 10, which consists of agricultural regions. In these regions, economy is still reliant on agriculture and there is not a significant increase in the share of services in the economy. In other words, there is not a significant shift from this agriculture dominated economic structure. Also, these regions have high positive population change rates and a high percentage of young population. The main features of each of these clusters are discussed in more detail in the below sections.

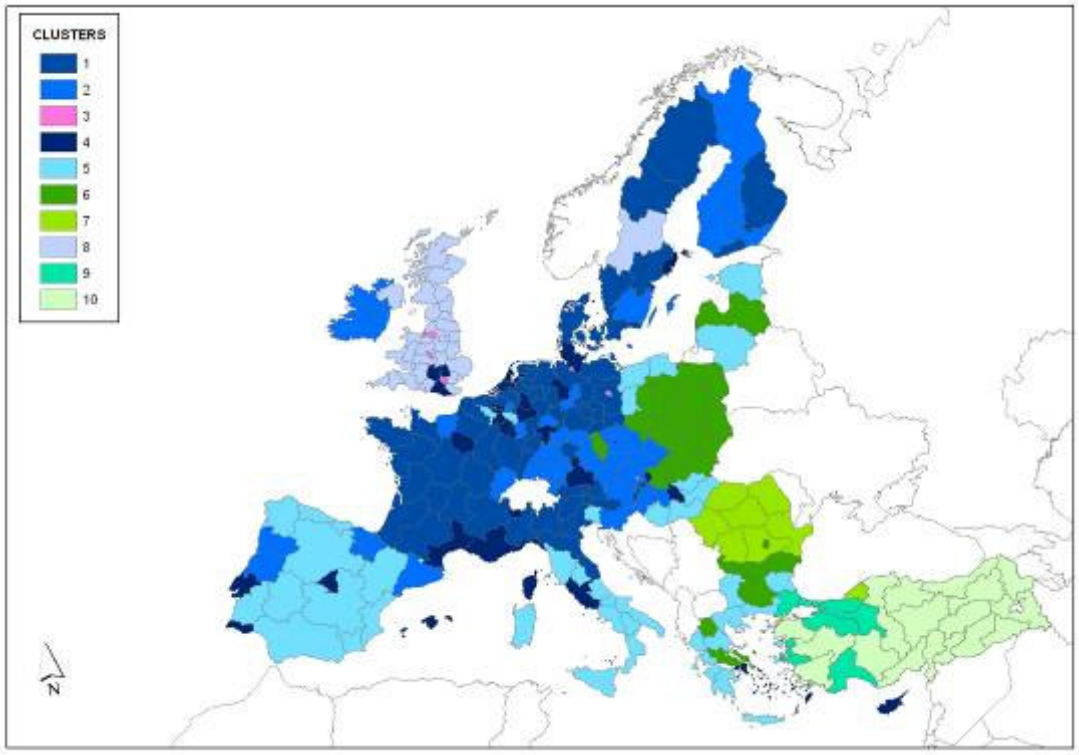


Figure 4.22 Clasification of the European Regions Using Economic Structure, Employment and Population Variables

Cluster 1: Core; Mixed Economy Regions

There are 65 regions in this cluster. They are some Austrian; Dutch and Belgian regions; all former eastern German regions except for Berlin together with some northern and a few southern regions; Uusimaa and Itä-Suomi in Finland; most of the

northern and central French regions; northern Italian regions; and most of the Swedish regions. The main feature of this cluster is the mixed character of the economy. The share of services in total employment and total GVA in the regions of this cluster is high (SE=67,33%, SGVA=69,08%), but not as high as in the service regions. On the other hand, the same values for industry are also not low (IE=27,75%, IGVA=30,33%), though not as high as in the industrial regions. For this reason, the regions can be identified as mixed economies. In addition to that, when compared to other core clusters, they have the lowest decrease in the share of agriculture in total GVA (CAGVA=-11,89%). They also have lower percentage of young population (YP=16,64%) compared to the other core clusters.

Cluster 2: Industrial Regions

There are 40 regions in this cluster. They are some regions of Niederösterreich, Steiermark, Oberösterreich and Vorarlberg in Austria; all Check regions except for Prague; most of the southern German regions; País Vasco, Navara, La Rioja and Cataluña in Spain; Väli-Suomi, Etelä-Suomi and Pohjois-Suomi in Finland; Haute-Normandie and Franche-Comté in France; Közép-Dunántúl and Nyugat-Dunántúl in Hungary; both of the Irish regions; Notre and Centro in Portugal; Småland med öarna in Sweden; and Slovenia. The main future of these regions is the high share of industry in total employment and high shares of industry and manufacturing in total GVA (IE=35,82%, IGVA=39%, MGVA=33,38%). Especially in the regions of New Member States, these shares are very high (above 40%). The share of services in total employment is lower then in other core clusters (SE=58,3%, SGVA=59,68%). The share of agriculture in total employment and GVA is very low, like in other core clusters (AE=5,87%, AGVA=3,11%). Youth unemployment rates, employment rates and economic activity rates are lower then in dynamic service regions (YUR=12,86%, ER=66,58%, EAR=71,29%). In addition to that, percentage change in the share of agriculture in total GVA is high (CAGV=-24,68), however, the percentage change in the share of services and industry in total employment and GVA is low (CIGVA= -0,06%, CSGVA=1,09%), especially compared to service regions (cluster 4 and 8). Here, it is necessary to add that northern Italian regions are also industry oriented. However, their economies have become more reliant on

service sector as revealed by the fact that the increase in service GVA in total GVA (above 4% in average) is higher then in the other industrial regions. Also, industrial regions have the lowest population density (PD=127,51) among all the core clusters.

Cluster 3: Core; Densely Populated Urban regions

This cluster includes only 9 regions; London, Greater Manchester, Merseyside, West Midlands, Brussels, Vienna, Berlin, and Hamburg. These regions do not belong to the dynamic service regions as they have very high population density (PD=39,34,7), and very high share of services in total employment and total GVA (SE=74,74%, SGVA=81,90%). The extreme population density also differentiates these regions from other urban regions like Paris, Madrid, Lazio etc. that belong to the cluster of dynamic service sector. Agriculture is almost non-existent in these regions (AE=0,31%, AGVA=0,12%). So, they are urban regions. On the other hand, employment rates and economic activity rates are lower then in the other core clusters (ER=64,44% EAR=71,08%). They also have the lowest population change rate (PC=1,32%) among all the core clusters.

Cluster 4: Core; Dynamic Service Regions

There are 40 regions in this cluster. They are Vlaams-Brabant, Namur, Brabant Wallon and Luxembourg in Belgium; Cyprus; Prague; Oberbayern, Darmstadt, Hannover, Düsseldorf, Köln and Schleswig-Holstein in Germany; Denmark; Madrid, Islas Baleares, and Canarias in Spain; Åland in Finland; Île-de-France and coastal Mediterranean regions in France; Budapest; Valle d'Aosta, Liguaria and Lazio in Italy; Luxembourg; Flevoland, Utrecht, Noord Holland and Zuid Holland in the Netherlands; Lisbon, Algarve, and Açores and Madeira islands in Portugal; Stockholm; Bratislava; and regions around London in the UK. This cluster includes two groups of regions; large metropoles like Paris, Stockholm, Lazio, and tourist regions like Portuguese islands, Cyprus, costal regions of France. The main feature of these regions is very high share of services in total employment and GVA (SE=75,25%, SGVA=80,93%). This cluster also has a low share of industry in total employment, and low shares of industry and manufacturing in total GVA (IE=20,4%, IGVA=19,62%, MGVA=11%). Also, there is an ongoing decline in the share of

industry and rise in that of services (CIGVA=-8,97%, CSGVA=3,22%)). In addition to these, share of agriculture in total employment and GVA is very low in this cluster. The cluster averages are only 4,13% and 2,16% respectively. Also, in the period from 1995 to 2001, there has been a decrease in the shares of agriculture (CAGVA=-22,62%). Due to the high share of services which creates employment, the employment rates are high and young unemployment rates are low (ER=66,06% and YUR=15,06%). Population density is also high (PD=378,46), though not as high as in urban regions, and population change rate is relative high compared to other regions (PC=6,89%), except for most of the peripheral regions. For these regions they can be considered as dynamic service regions. A similar cluster emerges if employment share in agriculture, employment rate, technological capacity and labour productivity in 1997 are considered as shown in the clustering study of Paci, Pigluari, and Pugno (2003). In their study, British regions form a single cluster with Brussels, Berlin and Dutch regions, which is characterized by specialization in public services.

Cluster 5: Semi-Periphery; Stabilization of Structural Change

There are 44 regions in this cluster. These are Hainaut and Liège in Belgium; South-West and South-East in Bulgaria; Estonia; Lithuania; most of the Spanish, Hungarian and Greek regions; and southern and some central Italian regions. These regions are also subject to a very sharp decrease in the share of agriculture in total GVA (CAGVA=-26,58%). However, increase in the share of services in total GVA is not very high (CSGVA=4,89%). The reason may be that these regions have been subject to a longer and thus a more stabilized structural change. In the clustering study of Paci, Pigliaru and Pugno (2003), the Southern European regions are characterised as being subject to a strong process of structural change in the period from 1975 to 1997. As a result, they reached high shares of services in total employment and total GVA when compared to industry and agriculture (SE=59,03%, SGVA=69,31%). However, share of agriculture in employment in total GVA (AE=14,79%, AGVA=6,75%) is higher then in first three clusters. Thus, they can be considered as mixed economies and transition zones as mentioned above. Employment rates, on the other hand are at a middle level (ER=54,8%), but young unemployment rates are

high YUR=28,96%). In terms of population features, these regions are similar to core clusters except for urban regions.

Cluster 6: Dynamic Periphery; Regions of Radical Structural Change

This cluster includes 25 regions, which are North-West, North Central, North-East and South Central in Bulgaria and most of the Polish regions. The most striking feature of this cluster is a radical structural change that is seen in the sectoral structure of the economy. Very high percentage decrease in the share of agricultural GVA in total GVA (CAGVA=-31,68%) and very high percentage increase in the share of service GVA in total GVA (CSGVA=15,28%) reveal this situation. However, agricultural employment is still high in these regions (AE=24,66%), but much lower then in other peripheral regions. The structural change in these regions is not only in agricultural sector, but in industrial sector as well, as there has been a very high percentage decrease in the share of industrial GVA in total GVA (CIGVA=-19,5%). On the other hand, low employment rates and high young unemployment rates are recorded in the regions of this cluster (ER=52,87%, YUR=36,98%). Also, these regions have showed a slight decrease in their population (PC=-0,58). However, they are considered as dynamic regions due to the above mentioned extreme decrease in agricultural and industrial GVA, and increase in the share of services GVA.

Cluster 7: Less Dynamic Periphery; Regions of Structural Change

There are 8 regions in this cluster. These are all Romanian regions except for Bucharest; and Zonguldak in Turkey. In all of these regions, share of agriculture in total employment and total GVA is high (AE=44,6%, AGVA=14,88%). Share of services is, on the other hand, low (SE=31,36%, SAGV=45,81%). However, there has been a high percentage decrease in agricultural GVA and a high percentage increase in services GVA (CAGVA=-23,55%, CSGVA=40,26%). In other words, there has been a structural change in these regions, though not as significant as in cluster 6. On the other hand, employment rates and economic activity rates are relative low and young unemployment rates are high, again not as extreme as in

cluster 6. (EAR=60,6%, ER=55,93%, YUR=18,09%). These regions have also showed a slight decrease in their population (PC=-1,7), like the regions in cluster 6.

Cluster 8: Core; Less Dynamic Service Regions

This cluster includes only 30 regions located mainly in the UK. Swedish region of Norra Mellansverige also fall into this cluster. These regions do not belong to the dynamic service regions as they have lower share of services in total GVA (SGVA=68,52%) when compared to dynamic service regions. They also have lower population change rate and population density then dynamic service regions (PC=3,16%, PD=269,42). Share of agriculture in total employment and GVA is low (AE=2,94%, AGVA=2,06%), though not as low as in urban regions. On the other hand, employment rates and economic activity rates are higher then in dynamic service regions (ER=72,25% EAR=75,82%).

Cluster 9: Periphery with Development Potential; Regions of High Poulation Potential and Slight Structural Change

There are 7 regions in this cluster, which are located in Turkey. The main feature of these regions is high share of agriculture in total employment and total GVA (AE=31,61%, AGVA=11,07%). However, these regions are less reliant on agriculture and have higher shares of services in total employment and GVA (SE=48,9%, SGVA=60,14%) then the stagnant agricultural regions. In this respect, this cluster is similar to cluster 7. In addition to that, percentage of young population and population change rate is much higher then in the regions of all other clusters except for stagnant agricultural regions. (YP=24,56%, PC=26,3%). They have also been subject to a slight structural change as share of agriculture in total employment and GVA decreased in the period from 1994 to 2000 (CAGR=-13,14). Due to this structural change and high population potential, these regions can be considered as having development potential, though lagging compared to peripheral regions of cluster 6 and 7 potential.

Cluster 10: Stagnant Periphery; Agricultural Regions

There are 18 regions in this cluster, all of which are located in Turkey. The main feature of these regions is very high share of agriculture in total employment and

total GVA (AE=61,07%, AGVA=25,63%). Although they are similar to regions in cluster 9 in terms of changes in the shares of agriculture, industry and services in total employment and GVA, they are not considered as having development potential due to their ongoing reliance on agriculture. In addition to that, percentage of young population and population change rate is much higher then in the regions of all other clusters (YP=32,34%, PC=14,64%). Also, these are generally scarcely populated regions (PD= 69,22). Employment rates and economic activity rates are low (ER=43,28%, EAR=47,64%), which means these regions cannot utilize their high and dynamic population potential.

4.5. Periphery Based on Welfare Conditions

In this section, 287 NUTS2 regions of the EU and accession countries are classified using welfare indicators and homogenous groups of regions are formed. The variables that used of in the analysis are listed in Table 4.8.

Table 4.8 Indicators Used in the Analysis

CONCEPT	INDICATOR/PROXY
Welfare	(EDU) Higher education graduates as a percentage of population aged 25-64 (HB) Number of hospital beds per 1000 inhabitants (HP) Number of health personnel per 1000 inhabitants (PC) Number of private cars per 10 inhabitants (GDPINH) GDP per inhabitant

5 clusters emerge as a result of the classification. The geographical distribution of these clusters is displayed in Figure 4.23. As can be seen on the figure, a distinction between Eastern Europe and Western Europe becomes evident when welfare indicators are considered. The western regions including Spanish and Portuguese

regions, record high values in all aspects. Eastern European regions on the other hand do not differ much from western regions in terms of health facilities, but they have low percentages of population with high level education. Turkish regions on the other hand have generally low values in all aspects. Only three metropolitan regions; Istanbul, Ankara and İzmir are similar to eastern European regions. The average values of included variables for each of the cluster are recorded in Table 4.9.

Table 4.9 Welfare in European Regions, final clusters for the included variables

CLUSTERS	EDU	HB	HP	PC	GDPINH
1. Core; developed in all aspects	23,30	392,77	246,86	4,44	20770
2. Core; highly developed in all aspects	23,75	794,05	354,00	4,91	23997
3. Dynamic Periphery; low income, developed health facilities medium level educational attainment	12,21	704,08	272,29	2,22	5490
4. Semi-Periphery; high income low educational attainment	9,93	446,82	604,11	5,88	20363
5. Lagging Periphery; underdeveloped in all aspects	6,42	194,10	87,93	0,50	1964

The first two clusters can said to be the core of the Europe in terms of welfare indicators. The first consists of regions located in Sweden, the UK, and Portugal, Spain, and Benelux countries. These regions have high values in all aspects. Cluster 2 consists of regions located mainly in Western and Central Europe, together with Finland and Latvia. These regions have the highest values in all aspects, especially in health facilities. Cluster 4 consists of all Italian Regions and Islas Baleares in Spain. These regions are similar to first two clusters in all aspects except for educational attainment of the population. In these regions, percentage of population with high level of education is very low compared to first two clusters.

Cluster 3 and 5 are the two different peripheries of the Europe in terms of welfare indicators. The first of them, namely the Cluster 4, consists of eastern European

regions. It differs from the core clusters only in the percentage of population with high level educational attainment, and number of private cars. The percentage of population with high level education is much lower then in the first two regions. Number of private cars per 10 inhabitants is only half as much as that in first two clusters. However, this cluster does not differ from first two clusters in terms of health indicators. The second periphery is the cluster 6 which consists of Turkish regions except for Istanbul, Ankara and İzmir. This cluster is different from rest of the clusters in all aspects. The values for all variables are lower then all other clusters, especially the core ones. The main features of each of these clusters are discussed in more detail in the below sections.

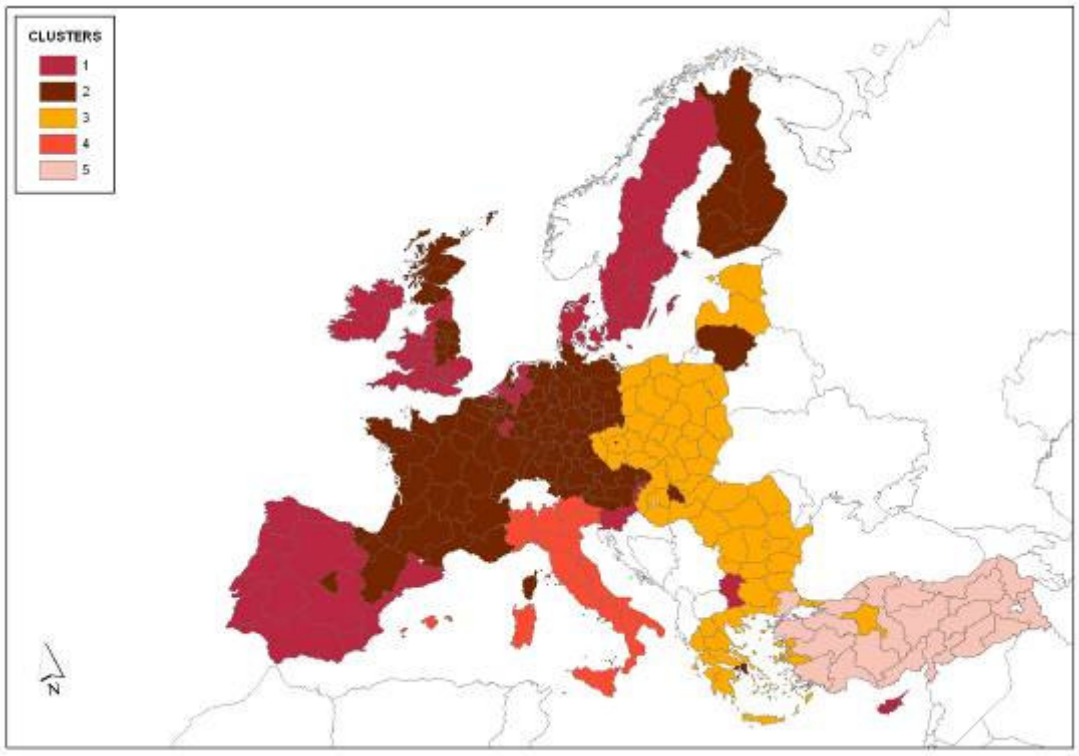


Figure 4.23 Classification of European Regions by using Welfare Indicators

Cluster 1: Core; Developed in All Aspects

There are 68 regions in this cluster. They are Burgenland in eastern Austria; Luxembourg in southern Belgium; South-West in Bulgaria; Cyprus; Denmark; all Spanish regions except for Madrid and a few regions in the north-eastern part of the country; both of the Irish regions; most of the Dutch regions; all Swedish and Portuguese regions; Slovenia; and most of the central and southern British regions. The main feature of these regions are high GDP per inhabitant, high percentage of population with high education, high amount of private cars per 10 inhhabitants, and developed health facilities (GDPINH=, EDU=23,3%, HB=392,77, HP=246,86, PC=4,4). Only in Portuguese regions, percentage of high education graduates is low (between 5% and 13%). More then 26% of the population aged 25-64 in these regions are university graduates.

Cluster 2: Core; Highly Developed Health Facilities

This cluster consists of 112 regions. These are all Austrian regions except for Burgenland, all Belgian regions except for Luxembourg; Prague; all German and French regions; Madrid, and north-eastern Spanish regions of País Vasco, Navarra and Aragón; all Finnish regions; Budapest; Luxembourg; Lithuania; Groningen, Drenthe, Utrecht and Noord-Holland in the Netherlands; Bratislava and some central and northern British regions. These regions are highly developed in all aspects. Especially number of hospital beds per 10000 inhabitants is very high compared to other clusters (HB=794). Apart from that, private cars per 10 inhabitants is also high (PC=5,2). These regions also have the highest GDP per inhabitant among other clusters (GDPINH=23397 Euros). I addition to that, percentage pf high education graduates is very high (EDU=23,75%). This value is especially high in Lithuania (45,03%), Väli-Suomi in Finland (40,01%), and in South-West regions of the UK (39,96%).

Cluster 3: Periphery; Low Income, Developed Health Facilities Medium Level Educational Attainment

This cluster consists of 62 regions. They are all Bulgarian regions except for South-West; all Check regions except for Prague; Estonia; Latvia; all Greek regions except

for Athens; all Hungarian regions except for Budapest; Latvia; all Polish and Romanian regions; all Slovakian regions except for Bratislava; and Istanbul, Ankara and İzmir in Turkey. These regions have well developed health facilities (HB=704,08, HP=272,29). However, percentage of high education graduates is lower then the first two clusters (EDU=12,21%). Also, number of private cars per 10 inhabitants are low when compared to first two clusters (PC=2,22).

Cluster 4: Semi-Periphery; High Income Low Educational Attainment

This cluster consists of 21 regions, which are Islas Baleares in Spain and all Italian regions. These regions have well developed health facilities (HB= 446,82, HP=604,11) and number of private cars per 10 inhabitants is also high (PC=5,88). They also have high GDP per inhabitant (GDPINH=20383 Euros). However, percentage of population with high educational attainment is very low when compared to first three clusters (EDU=9,93%). Only in Islas Baleares this percentage is relative high (16,73%).

Cluster 5: Lagging Periphery; Underdeveloped in All Aspects

This cluster consists only of 23 Turkish regions, in other words all Turkish regions except for Istanbul, İzmir and Ankara. This cluster has low values for all variables used in the classification. Especially in eastern regions, the values are even lower. For example in Ağrı, Van and Mardin, percentage of high education graduates in total population is below 5%, health personnel per 10000 inhabitants is below 45, and GDP per inhabitant is below 1100 Euros. Only in Antalya the percentage of population with high educational attainment is above 10%.

4.6 Periphery Based on Endogenous Growth Dynamics

In this section, 287 NUTS2 regions of the EU and accession countries are classified into homogenous groups of regions in terms of their innovative capacities. The variables regarding innovative capacity that are made used of in the analysis are listed in Table 4.10.

Table 4.10 Indicators Used in the Analysis

CONCEPTS	INDICATORS/PROXIES
Endogenous Growth Dynamics	(RDEXP) R&D expenditure as a percentage of GDP (CRDPER) Percentage Change in the R&D expenditure as a percentage of GDP (RDPER) R&D Personnel as a percentage of total active population (PATENT) Patent applications per million inhabitants (EDU) Higher education graduates as a percentage of population aged 25-59

5 clusters emerge as a result of the classification. The geographical distribution of these clusters is displayed on Figure 4.24. As the figure demonstrates, the innovative regions of Europe are concentrated in a few areas; central, north western and northern Europe. There is also an intermediary group of regions, scattered around the innovative core. These regions are less innovative, but they can be considered as having an innovative capacity to some extent. Also, a large group of regions, characterised by low innovative capacity but high level of human capital, surround the innovative core. Most of the eastern and southern regions, on he other hand, are not innovative. There are only a few regions scattered in the vast eastern and southern Europe, which can be considered as becoming more innovative. The average values of included variables for each of these cluster are recorded in the below table.

Table 4.11 Endogenous Growth Dynamics in European Regions, final clusters for the included variables

CLUSTERS	RDEXP	RDPER	
1. Stagnant Periphery; Regions with Low Innovative Capacity and Low Level of Human Capital	0,44	0,43	
2. Semi-Periphery; Regions with Low Innovative Capacity and High Level of Human Capital	0,99	0,96	
3. Core; Regions with Very High Innovative Capacity and High Level of Human Capital	3,38	2,44	
4. Semi-Periphery; Regions with Medium Innovative Capacity and High Level of Human Capital	2,11	1,44	
5. Dynamic Periphery; Regions with Low but Increasing Innovative Capacity and High Level of Human Capital	0,49	0,80	
CLUSTERS	PATENT	CRDEXP	EDU
1. Stagnant Periphery; Regions with Low Innovative Capacity and Low Level of Human Capital	8,72	8,58	9,75
2. Semi-Periphery; Regions with Low Innovative Capacity and High Level of Human Capital	71,96	4,13	18,99
3. Core; Regions with Very High Innovative Capacity and High Level of Human Capital	340,91	7,12	26,31
4. Semi-Periphery; Regions with Medium Innovative Capacity and High Level of Human Capital	141,86	4,77	27,03
5. Dynamic Periphery; Regions with Low but Increasing Innovative Capacity and High Level of Human Capital	26,38	183,26	14,19

The above mentioned innovative regions located in central, north western and northern Europe constitutes the cluster 3. This cluster can also be considered as the core of the Europe in terms of innovative capacity and human capital. Cluster 4, on the other hand constitutes the above mentioned intermediary zone, which is less innovative then the core. Thus, this cluster can be considered the semi-periphery of the Europe. The regions that are not innovative but have high level of human capital, namely the cluster 2, also constitute the semi-periphery of the Europe. The periphery is vast, and represented by cluster 1 and 5. Cluster 1 is not innovative and has low level of human capital, and it shows almost no sign of increasing innovative capacity. On other hand, cluster 5 can be considered as the dynamic periphery, which has experienced a significant increase in innovativeness. In the below sections, the main features of each of these clusters are discussed in more detail.

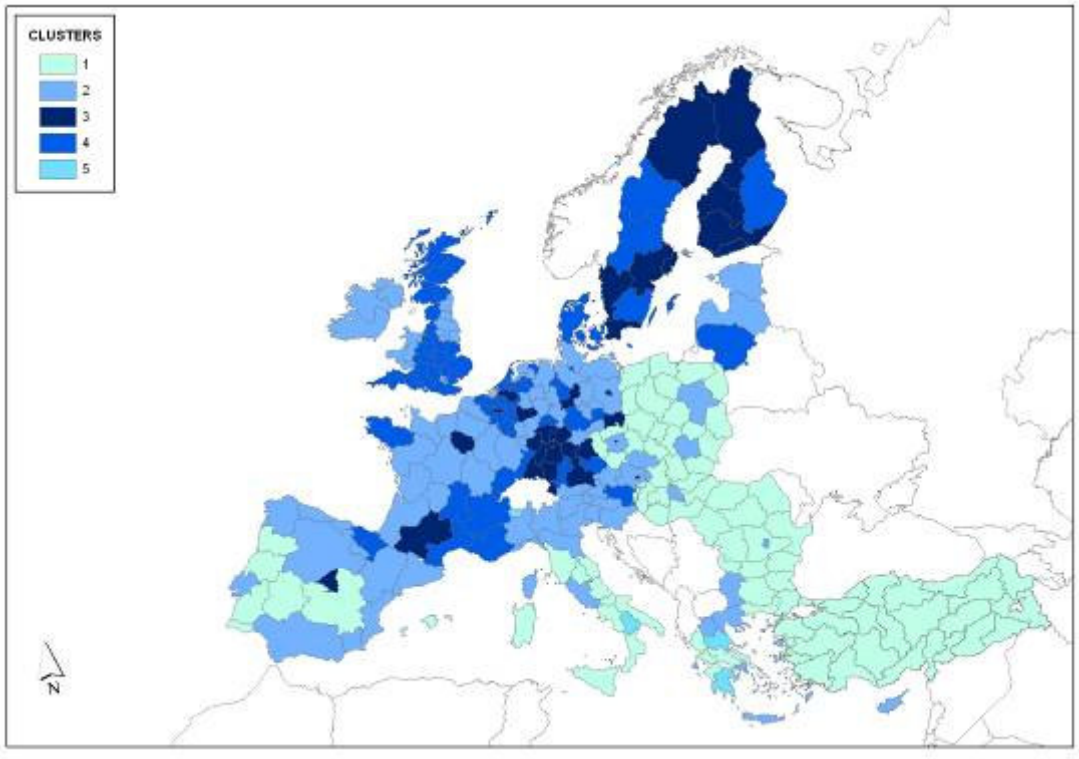


Figure 4.24. Classification of European Regions Considering Endogenous Growth Dynamics

Cluster 1: Stagnant Periphery; Regions with Low Innovative Capacity and Low Level of Human Capital

There are 90 regions in this cluster, which are Burgenland in Austria; all Bulgarian regions except for South-West, all Romanian regions except for Bucharest; all Hungarian regions except for Budapest; most of the Polish and Check regions; all Slovakian regions except for Bratislava; Castilla-La Mancha, Extremadura and Islas Baleares in Spain; Anatoliki Makedonia, Ipeiros, Dytiki Elada and Sterea Ellada; southern and some central Italian regions; most of the Portuguese regions; and all of the Turkish regions. The main feature of these regions is the low share of R&D expenditure in total GDP (RDEXP=0,44%) and low share of share of R&D personnel in total active population (RDPER=0,4%). In this respect, they are similar to the regions in cluster 5. However, when development of innovative activities is considered, they stand out as much less dynamic then other regions. For example,

percentage change in share of R&D expenditure in total GDP (CRDEXP=8,58%) is much lower then in the regions of 5. In addition to that, these regions have the lowest percentage of higher education graduates in total population (EDU=9,75%). For this reason, they are considered as having low level of human capital.

Cluster 2: Semi-Periphery; Regions with Low Innovative Capacity and High Level of Human Capital

This cluster includes 91 regions, which are, most of the Austrian regions; South-West in Bulgaria; Cyprus; Střední Čechy and Jihovıchod in Chech Republic; some northern and most of the eastern German regions; Estonia; Latvia; Slovenia; Bratislava; Budapest; Irish regions; most of the Spanish, Greek and some northern and central French regions; northern Italian regions and Lazio; northern Dutch regions; and some central and south-western British regions. The main feature of these regions is low innovative capacity indicated by low percentage of R&D expenditures in total GDP (RDEXP=0,99%) and low percentage of R&D personnel in total active population (R&D=0,96%) and low amount of patent applications per million inhabitants (PATENT=71,96). However, they have higher percentage of population with high level education (EDU=18,99%). In fact, Italian regions in this cluster have higher amounts of patent applications per million inhabitants, but their low R&D expenditure and R&D personnel values, group these regions into this cluster.

Cluster 3: Core; Regions with Very High Innovative Capacity and High Level of Human Capital

This cluster includes 31 regions which are Vienna and Vorarlberg in Austria; Brabant Wallon in Belgium; Prague; southern German regions; Madrid; all Finish regions except for Itä-Suomi; Île-de-France and Midi-Pyrénées in France; Noord-Brabant in the Netherlands; ans some Swedish regions. These regions represent the innovative areas of the EU. They have recorded high values in all aspects. First of all, the share of R&D expenditure in total GDP and the share of R&D personnel in total active population is considerably high when compared to other regions (RDEXP=3,38%, RDPER=2,44%). Patent applications per million inhabitants is also

significantly high (PATENT=340,91). Also, there has been a considerable increase in the share R&D expenditures, considering the initial values (CRDEXP=7,12%).

Cluster 4: Semi-Periphery; Regions with Medium Innovative Capacity and High Level of Human Capital

This cluster consists of 69 regions, which are Steiermark in Austria; most of the Belgian and Dutch regions; a few regions spread over Germany; some Swedish regions; Denmark; País Vasco and Navarra in Spain; Itä-Suomi in Finland; some south-western regions and Bretagne in France; Lithuania; Luxembourg; and most of the British regions. These regions can be identified as less innovative then the regions in the cluster 3, but more innovative then the ones in other clusters. They have average values in all aspects regarding innovativeness (RDEXP=2,11%, RDPER=1,44%, PATENT=141,86). However, this cluster has the highest percentage of population with high level education (EDU=27,03%).

Cluster 5: Dynamic Periphery; Regions with Low but Increasing Innovative Capacity and High Level of Human Capital

This cluster includes only 5 regions, which are Åland in Finland; Thessalia and Peloponnissos in Greece; and Valle d'Aosta and Basilicata ilicata in Italy. The main feature of these regions is that they are not innovative (RDEXP=0,63%, RDPER=1,04%, PATENT=26,38), but there has been a saignificant increase in their innovative capacity as indicated by the sharp increase in their R&D expenditure (CRDEXP=183,26%). This is the main point that differentiates this cluster from the cluster 1, namely the stagnant periphery.

4.6 Concluding Remarks

In the above sections, the European regions are classified according to the four different definitions of the periphery, which are, definition of the periphery by using income and income growth differentials, definition of the periphery based on economic structure, employment and population potentials; definition of the periphery based on welfare conditions, and definition of the periphery based on endogenous growth dynamics. There are different data sets for each of the definition,

and the European regions are classified for each of these data sets. The result confirms the argument that there are different peripheries in Europe according to each definition. To put differently, each definition defines different peripheries, which have different characteristic features and, one region can be defined as peripheral according to one definition, whereas the same region is defined as core in another definition. For example, British and French regions are classified as core regions according to income differentials and socio-economic indicators; however, some of them are classified as semi-peripheral according to the definition made considering endogenous growth dynamics. On the other hand, Italian regions stand out as core according to most of the definitions, whereas they are classified as peripheral or semi-peripheral according to definitions made by using endogenous growth dynamics. Another interesting case is of the Check regions. Most of these regions are classified as peripheral according to all definitions, but the ones made according to economic structure, and employment and population potentials. For example, they have generally low income levels, and low percentage of population with high level education, and are classified as peripheral considering income differentials and welfare conditions. However, they stand out as core regions when their economic structure is considered, due to their high shares of industry in total employment and total GVA. Another clear example is Spanish regions. Most of the Spanish regions are categorised as semi-peripheral according to both income and income growth differentials, and economic structure, employment and population potentials. However, when welfare conditions are considered, all of the Spanish regions are classified as core. On the other hand, when endogenous growth dynamics are considered, most of them are classified as either peripheral or semi-peripheral.

From the perspective of the first definition of the periphery that is made by using income and income growth differentials, four different peripheries occur in Europe. The first one of them is the stagnant periphery, which consists mainly of regions of Bulgaria, Romania and Check Republic and Turkey. These peripheral regions are characterised by low levels of income and income growth or stagnation. One reason for this may be that, except for Turkish regions, they are mostly old industrial regions and therefore suffer from not being able to compete with the new industries

based on high skills and technology. The second type of peripheral regions, the less dynamic periphery, consists of some regions of Turkey; Poland; Hungary and together with South-East in Bulgaria and central Check region of Střední Čechy. They are characterised by low income levels and medium income growth. The third type of periphery is the dynamic periphery, which consists of the regions of Poland, Slovakia, western Hungary and Turkey, together with Latvia and Estonia. These regions have recorded very high income growth, due mainly to out-migration from agriculture to more productive sectors. On the other hand, most of the southern European regions are classified as semi-peripheral for they have middle income levels.

According to the second definition of the periphery, namely the definition of the periphery made based on economic structure, employment and population potential, again four different peripheries appear in Europe. The first is dynamic periphery, which consists of most of the Polish and Bulgarian regions, together with a few Greek regions and Latvia. These regions have been subject to a radical structural change in last years. Share of both industry and agriculture in total GVA have decreased significantly. For this reason they are characterised as dynamic regions. Most of them also recorded high income growth rates, and are characterised again as dynamic periphery in the above mentioned classification made according to income and income growth differentials. The second is the less dynamic periphery, which consists of most of the Romanian regions, and Zonguldak in Turkey. These regions are subject to a structural change in the form of decrease in the share of agriculture in the economy, though not as significant as in the dynamic peripheral regions. Also, regions in both of these clusters have been subject to a slight decrease in their population in the period from 1996 to 2000. The third is the periphery with high development potential. This cluster consists of some western Turkish regions, which have high population potential in the form of high percentage of young population and higher population density compared to the rest of the country. The fourth is the stagnant periphery, which consists of agricultural regions located mainly in central and eastern Turkey. In these regions, economy is still reliant on agriculture and there is not a significant increase in the share of services in the economy. In other words,

there is not a significant shift from this agriculture dominated economic structure. Therefore, they are characterised as stagnant. In addition to that, most of the southern European regions and together with Latvia and Estonia; some Hungarian, Slovakian, Bulgarian and north-western Polish regions constitute the semi-periphery of the Europe. Except for the regions in the New Member States, they have attained high shares of services and low shares of agriculture in the total employment and GVA, for they have experienced a longer catch-up process with the core. Interestingly, the regions of the New Member States that are here classified as semi-peripheral belong to the peripheral cluster in the classification made according to income and income growth differentials. This shows that these regions have similar economic structures, and employment and population features although they have lower income when compared to southern European regions.

When the European regions are evaluated according to welfare indicators, a very different core-periphery structure comes forth. This time, two types of peripheries appear, however the regions they are consist of are different. All of the Eastern European regions together with Greece form the first type of periphery, characterised as poor and having developed health facilities. This type of periphery differs from the core for it has a low percentage of population with high level educational attainment, lower income levels and the number of private cars per 10 inhabitants is also low. The second type of periphery, which consists of Turkish regions except for Istanbul, Ankara and İzmir, is characterised as underdeveloped in all aspects. It has less developed health facilities, and percentage of population with high educational attainment and, income and number of private cars per 10 inhabitants is low, when compared to core regions and those that belong to other peripheral regions. Italy and Islas Balereas in Spain constitute the semi-periphery of the Europe, which are characterised as rich but having low educational attainment. In these regions, percentage of population with high level of education is very low compared to the core regions.

Classification of the European regions by considering endogenous growth dynamics produces a totally different core-periphery map of the Europe. The periphery of the Europe according to this definition is vast, while the core is small and concentrated

in central and northern Europe. Two different peripheries occur. First is the largest periphery, the stagnant periphery that is not innovative and not dynamic. It includes regions which are not innovative, have low levels of human capital and show almost no sign of increasing innovative capacity. Most of the southern and eastern European regions belong to this type of periphery. Third is the periphery characterised by increasing innovativeness. It consists of a few regions spread mainly over Southern Europe that have experienced a significant increase in innovativeness. In addition to that, all the European regions except for southern German regions, most of the Scandinavian regions, and a few regions in the rest of the Europe like Madrid, Vienna, and Île-de-France, are categorised as semi-peripheral, although they are mostly belong to the core clusters in all other classifications, for they have much lower innovative capacity when compared to the core regions. Most of the capitals in the New Member States like Prague, Warsaw, Budapest, Bucharest, Sofia (South-West) are also classified as semi-peripheral, for they have higher levels of human capital then the rest of the country.

4.7 Reconsideration of the Situation of Turkey

Turkish regions are classified as peripheral according to all definitions of the periphery. They are even in a more peripheral position then many of the Eastern European regions. However, there are some areas in which some of he Turkish regions can integrate with Southern and Eastern European regions. In some areas, on the other hand, such an integration seems impossible at least in short-term.

When only income differentials were considered, Turkish regions would probably stand out as similar to poorest regions of the New Member states and the accession countries. However, when income growth and income growth differentials are considered together as it is done here, some western Turkish regions like Aydın, Balıkesir, Kocaeli and Ankara fall into the same cluster with richer regions of the New Member States, for they have very high growth rates of income per capital. On the other hand, Istanbul, Tekirdağ, Manisa, Bursa, Kayseri, Gaziantep and Şanlıurfa also belong to the same cluster with some Polish and Hungarian regions, for they have medium level growth rates of income per capita.

However, from the perspective of definition of the periphery made based on economic structure, and employment and population potentials, except for Zonguldak none of the regions in Turkey stand out as similar to the peripheral regions of the Eastern Europe. One reason for this is that employment in agriculture and share of agriculture in total GVA is very high compared even to the Eastern European regions which have the highest agricultural employment and GVA within Europe. However, even the regions in Turkey which have lower levels of agriculture and higher levels of services in total employment and total GVA do not appear as similar to any of the Eastern European regions, for they have, like all other Turkish regions, higher population change rates and percentages of young population. Also, structural change in terms of the sectoral structure of the economy of all of the Turkish regions is very slow compared to other peripheral regions. This means, most of the Turkish regions are still reliant on agriculture and the dominance of agriculture does not decrease in favour of services sector like in most of the regions that belong to other peripheral clusters.

When welfare conditions are considered, only a few western regions, Istanbul, Ankara and İzmir are in a similar situation with Eastern Europe, for they are large metropoles and have relative developed health and education facilities. The rest of the country forms on its own the most underdeveloped type of periphery.

From the perspective of endogenous growth dynamics, Turkish regions are in the same category with Southern and Eastern European regions in terms of innovative capacity. First of all, the core of the Europe in terms of innovative capacity and human capital is already small, and correspondingly there is a vast periphery in which the Turkish regions belong together with other southern and eastern European regions. In addition to that, almost all of the New Member States has one or two regions that are categorised as semi-peripheral for they have relative high innovative capacity and human capital. In Turkey, however, situation is different. No regional variation occurs. In fact there are regions with higher innovative capacity and human capital like İstanbul, Ankara, and Bursa, but this variation is so insignificant that, it does not appear when all European regions are considered.

CHAPTER 5

CONCLUSION

The definition of the periphery has continuously evolved as different theoretical discourses introduced and emphasized different concepts in explaining the peripherality. Although there is a huge and rich theoretical literature which provides us with a large variety of concepts that can be used to characterise the periphery in different ways, there is a shortage in the empirical studies that consider the European periphery from the perspectives of these concepts. In other words, the large varity of concepts which are emphisized in different theories to characterise the periphery do not reflect themselves in the area of empirical studies on European regions.

This thesis, first, attempts to show that there are different definitions of the periphery which can be made by considering the above mentioned concepts emphisized in different theoretical discussions. Five definitions are identified. The first is the definition of the periphery bu using income and income growth differentials. Second is the definition of the periphery based on economic structure, employment and population potentials. Third is the definition based on welfare conditions. Fourth is the definition made based on externalities. And lastly, fifth is the definition that is made based on endogenous growth dynamics. Second, it attempts to show that different peripheries appear in Europe from the perspectives of each of these definitions, and thereby aims to be a contribution to overcome the above mentioned shortage in the area of empirical studies. For this purpose, the main concepts emphasized by each definition and variables which may be used as indicators or proxies of these concepts are identified. The concepts of the first definition are income and income growth. Those of the second definition are socio-economic concepts like economic structure, employment, population. In the third definition,

welfare conditions determine whether a region is a core or a peripheral one. For the fourth definition, on the other hand, the concept of externalities come out of agglomeration, urbanisation and accessibility are designated. Lastly, for the fifth definition, concepts like physical capital, human capital, social capital and innovative capacity are identified. Next to the identification of indicators for each definition of the periphery, corresponding data sets are tried to be formed. As a result of serious regional data shortages, only four data sets are formed; a data set for each of the four definitions; definition of the periphery by using income and income growth differentials, the one made based on economic structure, employment and population potentials; the one based on welfare conditions; and lastly, the one based on endogenous growth dynamics. Following this, the European regions are classified using each of these data sets, in order to show that different peripheries appear in Europe depending on its definition.

In the classification made according to income differentials, all eastern European regions and the regions of all three accession countries stand out as peripheral. Southern European regions, which have higher income levels, are, on the other hand classified as semi-peripheral for they have middle and at times high income levels. All of the peripheral regions have low levels of income; however they differentiate into stagnant periphery, less dynamic periphery and dynamic periphery according to their income growth rates.

In the classification made by using economic structure, employment and population potentials, a different picture appeared. Here, four different peripheries occur; stagnant periphery, periphery with development potential, less dynamic periphery, and dynamic periphery. Here, Turkish regions, except for some western regions, belong to stagnant periphery due to their stagnant reliance on agriculture. Some western regions including İzmir, İstanbul, Tekirdağ, Kocaeli, Bursa and Aydın are classified as periphery with development potentials for they have less reliance on agriculture and a demographic dynamism. Most regions of Romania and Zonguldak in Turkey are classified as less dynamic peripheral, for they have experienced a decline in the share of agriculture in the economy. Polish regions, some Bulgarian regions and a few Greek regions belong to the dynamic periphery, for they have

experienced a very radical structural change. Southern European regions, Lithuania, Estonia, a few Polish, Hungarian and Bulgarian regions are, on the other hand, classified as the semi-periphery, for they have less reliance on agriculture, though more then the central, western and northern core, and are more specialized in service sectors. Interestingly, here, Check regions belong to the core, the industrial core, although they are classified as peripheral in terms of income per capita.

On the other hand, from the perspective of the definition of the periphery based on welfare conditions, the classification produces a very different map, for all Italian regions most of which were previously classified as core, fall into a semi-peripheral group on their own, for they have low percentages of high education graduates, although they are rich. Here, two different peripheries appear; dynamic periphery that is poor, has low educational attainment but developed health facilities, including eastern European and Greek regions; and lagging periphery that is underdeveloped in all aspects including Turkish regions except for Ankara, İzmir and İstanbul. Portuguese and Spanish regions which are classified as semi-peripheral with respect to their income levels and economic structure, employment and population potentials are, here, classified as core regions for they have developed health facilities and high educational attainments.

Classification of European regions considering endogenous growth dynamics produces a different core-periphery map of Europe, where the core is very small and concentrated at central and northern Europe, and the periphery is, on the other hand vast, including most of the southern and eastern European regions together with Turkish regions. Here, most of the western and central and a few northern European regions are categorized as semi-peripheral for they are not innovative but have high levels of human capital. One reason for this is that, innovative regions in particular countries are concentrated in certain parts of the country. In other words, concentration of innovative regions in certain nodes does not happen only at European scale, but at national scales as well. On the other hand, there is a vast periphery and within this vast periphery, minor differentiations occur. One Finnish region together two Italian and two Greek regions are characterised by increasing innovativeness as their R&D expenditures and patents show a considerably

increasing trend. The rest of the periphery, however, consists of only regions that are neither innovative nor dynamic.

The general result of this analysis is that the core-periphery map of Europe changes according to the different definitions of the periphery, that is, regions are not classified in the same group in all cases. Moreover, for example, a core region according to income differentials can stand out as peripheral when innovative capacities are considered. Or a peripheral region in terms of income differences can be classified as a core region when human capital levels are considered. In fact, this simple and clear finding shelters in something more complex and very crucial. First of all, there is not only one periphery of Europe but different peripheries and income differentials reveal only one of these peripheries. Second, peripheral regions may have considerable endogenous resources which are overlooked when only income differentials are considered. To achieve this, first, the classical dichotomy of rich north-poor south should be reconsidered and the definition of the periphery by using income and income growth differentials should not be considered as the only possible one, for it may be misleading in the way that it overlooks the main obstacles that are faced by some peripheries and the opportunities they have. 30 years ago, the problem of the periphery might have been only to catch up with the core in terms of income per capita. Therefore considering income differentials and grouping the regions according to these differentials could be adequate in producing regional development policies. However, now, parallel to the technological developments, the main task of the periphery is to catch up with the core in term of innovativeness and carrying out knowledge accumulation by enhancing and making use of its human and social capital. It is widely accepted that this kind of a catch-up in terms of innovativeness will bring together income growth too. For this reason, different and a broader identification of periphery should be made by identifying different peripheries according to their innovativeness and human capital levels together with other social and economical aspects. What is tried to be done in this thesis was to make an initial attempt to see the existence of such different peripheries. Should social capital be easy to be quantified and used in the analysis, this attempt would probably produce more promising and interesting results. However, even only

considering human capital and innovative capacity revealed the existence of different peripheries and that the periphery should not be defined simply as 'poor', but much more consideration should be made on its shortage of innovativeness and considerable level of human resources. This constituted the central theme of this thesis and the theory has already realized this to some extent, as there has been quite a lot of talk on this point, although it has not yet showed any effort to define different peripheries. However, the extent of the actions taken on this issue is unfortunately far from being adequate. For this reason, the above mentioned central theme of the thesis addresses mainly regional development policies and agents in the peripheral areas, who are or may be effective in a successful regional development. To put more precisely, the different meanings of the periphery that is mentioned throughout the thesis should reflect itself on policy areas as well.

In fact, there is a growing interest regarding peripheral areas on enhancing innovativeness and making use of their human resources in a more efficient way. In European Spatial Development Perspective (ESDP), which is a common frame of reference for the actors that involve in spatial planning and the development of the space in member states and regions, the principles for a European Spatial Development Policy are determined as development of a balanced and polycentric urban system and a new urban-rural relationship, and securing parity of access to infrastructure and knowledge in peripheral areas. For this purpose it is recommended that spatially differentiated measures are taken. It is further argued that previous policy measures affecting spatial development were mainly concerned with improving the links between the periphery and the core area through projects in the field of infrastructure. However, ESDP criticises this and arguing that a policy is now required to offer a new perspective for the periphery through a more polycentric arrangement of the EU territory; and a wide-ranging integration of knowledge-relevant policies, such as the promotion of innovation, education, vocational training, research and technology development policies is called for in the periphery.

Although there is a growing interest in endogenous sources of growth as preconditions of successful regional development, today, the EU still defines its periphery only by income differentials. The EU regional policy, which aims at

solidarity within the community, identifies the European periphery as objective 1 regions, whose GDP per inhabitant is at or below 75% of the Community average, and more than one third of the community's budget is allocated to these areas. The only exceptional objective 1 regions are the thinly populated regions of Finland and Sweden (fewer than 8 people per square km (European Commission, 2005). The regional policy of the EU further characterizes these objective 1 regions as having low level of investment, a higher than average unemployment rate, lack of services for businesses and individuals and poor basic infrastructure. To be more precise, the EU defines its periphery as homogenous, having the similar kind of problems, which is mainly low income per capita. However, considering the different definitions of the periphery that is tried to be put forward in the thesis, the EU should develop a new policy framework that is reinforced by bearing in mind that the periphery is not homogenous and do not have the same strengths and weaknesses. The vast European periphery consists of different peripheries which posses different local and regional conditions, features and requirements as revealed by the analysis made in the thesis. For this purpose, for a more successful regional development in the periphery, different peripheries according to their innovativeness and human capital levels together with other social and economical aspects should be identified and policy actions should be taken accordingly.

All these discussions on the changing meaning of the periphery regard Turkey in a special way, for she constitutes a unique case in most aspects when compared with the European regions. The classification analysis showed that there are large disparities among the EU regions, but the extent of these disparities is further accentuated when Turkey is also considered. Unlike in many eastern European regions, in most regions of Turkey no significant structural change has yet begun. Except for some western regions, almost whole Turkey is characterised by very high employment in agriculture although the agriculture has a small share in total GDP. This shows that Turkish regions are not only faced with problems regarding innovativeness and competitiveness, but also those regarding not being able to go through a process of structural change whereby the reliance on agriculture is reduced in favour of more productive sectors. When innovative capacity is considered, on the

other hand, Turkey may be considered as in the similar situation with many of the other peripheral regions on Europe. On the other hand, in case of human capital, Turkey lags to a great extent due mainly to her above mentioned strong reliance on agriculture. However, Turkey has a considerable potential to enhance her human capital for she has a very high percentage of young population and therefore dynamism of the labour force. For this purpose, the same arguments regarding all European territory is relevant for Turkey, yet not sufficient. The characteristics and potentials of different regions should be realized and their innovativeness should be enhanced and human capital should be made use of in a more efficient way. Parallel to this, more productive sectors or more income generating techniques in agricultural areas should be considered and reinforced in the Turkish periphery.

Consequently, the thesis argues that a broader understanding of the periphery, like it is tried to be done here, is called for. This broader understanding of the periphery is necessary and almost inevitable in the new era in order to break loose from the conventional core-periphery dichotomy made by considering only income differentials. For this reason, one must bear in mind that a broader identification of periphery, which is realized by identifying different peripheries according to their innovativeness and human and social capital levels together with other social and economical aspects, is needed. In other words, a wider range of indicators should be identified and used in determining the situation of the different peripheries. In addition to that, in order to achieve the goal of successful regional development in the periphery, policies that consider only income differentials and therefore lack of infrastructure may not be sufficient for all kinds of peripheries. Regional policies should bear in mind that there are different peripheries which have different characteristics and be made by considering characteristics of these different peripheries and focus on their main problems.

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APPENDIX

EUROPEAN UNION: NUTS2 REGIONS TAKEN INTO THE ANALYSIS

EU-25:

BE10 Région de Bruxelles-Capitale /Brussels Hoofdstedelijk Gewest
BE21 Prov. Antwerpen
BE22 Prov. Limburg (BE)
BE23 Prov. Oost-Vlaanderen
BE24 Prov. Vlaams-Brabant
BE25 Prov. West-Vlaanderen
BE31 Prov. Brabant Wallon
BE32 Prov. Hainaut
BE33 Prov. Liège
BE34 Prov. Luxembourg
BE35 Prov. Namur
CZ01 Praha
CZ02 Střední Čechy
CZ03 Jihozápad
CZ04 Severozápad
CZ05 Severovıchod
CZ06 Jihovıchod
CZ07 Střední Morava
CZ08 Moravskoslezsko
DK00 Danmark
DE11 Stuttgart
DE12 Karlsruhe
DE13 Freiburg
DE14 Tübingen
DE21 Oberbayern
DE22 Niederbayern
DE23 Oberpfalz
DE24 Oberfranken
DE25 Mittelfranken
DE26 Unterfranken
DE27 Schwaben
DE30 Berlin
DE41 Brandenburg - Nordost
DE42 Brandenburg - Südwest
DE50 Bremen
DE60 Hamburg
DE71 Darmstadt
DE72 Gießen
DEA1 Düsseldorf
DEA2 Köln
DEA3 Münster
DEA4 Detmold
DEA5 Arnsberg
DEB1 Koblenz
DEB2 Trier
DEB3 Rheinhessen-Pfalz
DEC0 Saarland
DED1 Chemnitz
DED2 Dresden
DED3 Leipzig
DEE1 Dessau
DEE2 Halle
DEE3 Magdeburg
DEF0 Schleswig-Holstein
DEG0 Thüringen
EE00 Eesti
GR11 Anatoliki Makedonia, Thraki
GR12 Kentriki Makedonia
GR13 Dytiki Makedonia
GR14 Thessalia
GR21 Ipeiros
GR22 Ionia Nissia
GR23 Dytiki Ellada
GR24 Sterea Ellada
GR25 Peloponnissos
GR30 Attiki
GR41 Voreio Aigaio
GR42 Notio Aigaio
GR43 Kriti
ES11 Galicia
ES12 Principado de Asturias
ES13 Cantabria
ES21 País Vasco
ES22 Comunidad Foral de Navarra
ES23 La Rioja
ES24 Aragón
ES30 Comunidad de Madrid

DE73 Kassel
DE80 Mecklenburg-Vorpommern
DE91 Braunschweig
DE92 Hannover
DE93 Lüneburg
DE94 Weser-Ems
FR10 Île-de-France
FR21 Champagne-Ardenne
FR22 Picardie
FR23 Haute-Normandie
FR24 Centre
FR25 Basse-Normandie
FR26 Bourgogne
FR30 Nord - Pas-de-Calais
FR41 Lorraine
FR42 Alsace
FR43 Franche-Comté
FR51 Pays de la Loire
FR52 Bretagne
FR53 Poitou-Charentes
FR61 Aquitaine
FR62 Midi-Pyrénées
FR63 Limousin
FR71 Rhône-Alpes
FR72 Auvergne
FR81 Languedoc-Roussillon
FR82 Provence-Alpes-Côte d'Azur
FR83 Corse
IE01 Border, Midland and Western
IE02 Southern and Eastern
ITC1 Piemonte
ITC2 Valle d'Aosta/Vallée d'Aoste
ITC3 Liguria
ITC4 Lombardia
ITD1 Provincia Autonoma Bolzano/Bozen
ITD2 Provincia Autonoma Trento
ITD3 Veneto
ITD4 Friuli-Venezia Giulia
ITD5 Emilia-Romagna
ITE1 Toscana
ITE2 Umbria
ITE3 Marche
ITE4 Lazio
ITF1 Abruzzo
ITF2 Molise
ITF3 Campania
ITF4 Puglia
ITF5 Basilicata
ITF6 Calabria
ITG1 Sicilia
ITG2 Sardegna
CY00 Kypros/Kıbrıs
LV00 Latvija
LT00 Lietuva
LU00 Luxembourg (Grand-Duché)
HU10 Közép-Magyarország
ES41 Castilla y León
ES42 Castilla-La Mancha
ES43 Extremadura
ES51 Cataluña
ES52 Comunidad Valenciana
ES53 Illes Balears
ES61 Andalucía
NL23 Flevoland
NL31 Utrecht
NL32 Noord-Holland
NL33 Zuid-Holland
NL34 Zeeland
NL41 Noord-Brabant
NL42 Limburg (NL)
AT11 Burgenland
AT12 Niederösterreich
AT13 Wien
AT21 Kärnten
AT22 Steiermark
AT31 Oberösterreich
AT32 Salzburg
AT33 Tirol
AT34 Vorarlberg
PL01 Dolnośląskie
PL02 Kujawsko-Pomorskie
PL03 Lubelskie
PL04 Lubuskie
PL05 Łódzkie
PL06 Małopolskie
PL07 Mazowieckie
PL08 Opolskie
PL09 Podkarpackie
PL0A Podlaskie
PL0B Pomorskie
PL0C Śląskie
PL0D Świętokrzyskie
PL0E Warmińsko-Mazurskie
PL0F Wielkopolskie
PL0G Zachodniopomorskie
PT11 Norte
PT15 Algarve
PT16 Centro (PT)
PT17 Lisboa
PT18 Alentejo
PT20 Região Autónoma dos Açores
PT30 Região Autónoma da Madeira
SI00 Slovenija
SK01 Bratislavskı kraj
SK02 Západné Slovensko
SK03 Stredné Slovensko
SK04 Vıchodné Slovensko
FI13 Itä-Suomi
FI18 Etelä-Suomi
FI19 Länsi-Suomi
FI1A Pohjois-Suomi
FI20 Åland

HU21 Közép-Dunántúl
HU22 Nyugat-Dunántúl
HU23 Dél-Dunántúl
HU31 Észak-Magyarország
HU32 Észak-Alföld
HU33 Dél-Alföld
NL11 Groningen
NL12 Friesland
NL13 Drenthe
NL21 Overijssel
NL22 Gelderland
UKD1 Cumbria
UKD2 Cheshire
UKD3 Greater Manchester
UKD4 Lancashire
UKD5 Merseyside
UKE1 East Riding and North Lincolnshire
UKE2 North Yorkshire
UKE3 South Yorkshire
UKE4 West Yorkshire
UKF1 Derbyshire and Nottinghamshire
UKF2 Leicestershire, Rutland and Northamptonshire
UKF3 Lincolnshire
UKG1 Herefordshire, Worcestershire and Warwickshire
UKG2 Shropshire and Staffordshire
UKG3 West Midlands
UKH1 East Anglia
UKH2 Bedfordshire and Hertfordshire
SE01 Stockholm
SE02 Östra Mellansverige
SE04 Sydsverige
SE06 Norra Mellansverige
SE07 Mellersta Norrland
SE08 Övre Norrland
SE09 Småland med öarna
SE0A Västsverige
UKC1 Tees Valley and Durham
UKC2 Northumberland and Tyne and Wear
UKH3 Essex
UKI1 Inner London
UKI2 Outer London
UKJ1 Berkshire, Buckinghamshire and Oxfordshire
UKJ2 Surrey, East and West Sussex
UKJ3 Hampshire and Isle of Wight
UKJ4 Kent
UKK1 Gloucestershire, Wiltshire and North Somerset
UKK2 Dorset and Somerset
UKK3 Cornwall and Isles of Scilly
UKK4 Devon
UKL1 West Wales and the Valleys
UKL2 East Wales
UKM1 North Eastern Scotland
UKM2 Eastern Scotland
UKM3 South Western Scotland
UKM4 Highlands and Islands
UKN0 Northern Ireland

ACCESSION COUNTRIES:

BG01 Severozapaden
BG02 Severen tsentralen
BG03 Severoiztochen
BG04 Yugozapaden
BG05 Yuzhen tsentralen
BG06 Yugoiztochen
RO01 Nord-Est
RO02 Sud-Est
RO03 Sud
RO04 Sud-Vest
RO05 Vest
RO06 Nord-Vest
RO07 Centru
RO08 Bucureşti
TR10 Istanbul
TR21 Tekirdağ
TR22 Balikesir
TR31 İzmir
TR32 Aydın
TR33 Manisa
TR41 Bursa
TR42 Bursa
TR51 Ankara
TR52 Konya
TR61 Antalya
TR62 Adana
TR63 Hatay
TR71 Kırıkkale
TR72 Kayseri
TR81 Zonguldak
TR82 Kastamonu
TR83 Samsun
TR90 Trabzon
TRA1 Erzurum
TRA2 Agri
TRB1 Malatya
TRB2 Van
TRC1 Gaziantep
TRC2 Sanlıurfa
TRC3 Mardin