TURUN KAUPPAKORKEAKOULU
Turku School of Economics

*Jenni Jaakkola*

# Income convergence in the enlarged European Union

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*Jenni Jaakkola*

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## 1 INTRODUCTION

In the current wave of globalisation almost all of the world's countries become more and more integrated into the world economy. The impacts of economic and political integration are especially important in Europe, where the European Union has enlarged significantly in recent years by accepting new members to join the union. The European Union started as an economic community between six of its initial member countries, and now there are 27 members in the EU. When the union was founded, all its members were quite similar in their economic and political conditions, and they shared a similar cultural and historical background. Now that the EU has enlarged into the Central and Eastern Europe, the union is not as uniform in terms of economic, political or cultural aspects as it used to be. In May 2004, eight Central and Eastern European countries joined the EU and the new members lag their Western neighbours in many respects. For example, there is a big gap in per capita incomes and the social and institutional development is still far behind that of Western Europe's.

One important and interesting question is that will the new members catch up the old ones and how fast it will happen. What is the role of deeper economic and political integration in achieving economic growth and improving the welfare of the inhabitants in these countries? So far, the Central and Eastern European countries have been able to grow much faster than the old EU members, when growth is measured in terms of GDP per capita. However, the economic development has been quite uneven leading to increasing regional disparities within these countries.

In this study, the role of economic integration as a determinant of growth is examined in more detail. The main focus of this study is to examine the relationship between growth and openness in trade, i.e. the level of economic and political integration of an economy into the world system. The relationship of trade and integration is a two-way process as trade deepens economic integration, also integration increases trade.

One important aspect in the study of economic growth is the question of convergence in income levels. According to the convergence hypothesis, initially poorer countries should grow faster than initially richer countries. In the long run the income per capita levels should converge and the gap between the rich and poor countries should decrease. In this study the possibility of achieving convergence in the per capita income levels is investigated. Also the role of openness in achieving convergence in

this process is studied. The convergence point of view is important when assessing the development in the Central and Eastern European countries. There are quite large differences in income per capita levels when the new EU members are compared to the old members. It will take quite a many years before the new member states will be able to reach the income per capita levels of their richer Western neighbours. According to some estimates, the convergence of income levels will take at least two or three decades (e.g. Kaitila, Alho & Nikula 2007).

This study is trying to assess the potential development of the Central and Eastern European economies and whether it will be possible that their income levels will converge to the levels of the old EU member states, and when this would happen. So far, the economic performance of the new EU entrants has been mainly positive. However, the benefits of this development have not been equally distributed either across these countries or within them. Thus, even if these countries are converging as a whole towards other EU countries, there might be quite large regional differences in the economic performance within these countries. As capital regions are the main growth centres, many peripheral regions are not gaining from the overall positive economic development. Also this adverse development is considered in this thesis.

## 2 CONCEPT OF ECONOMIC GROWTH AND MAIN GROWTH THEORIES

There are great differences in the rates of economic growth around the world. Some economies grow fast and the standards of living get better while other economies lack growth and remain poor. One interesting aspect in economics is how economic growth can be explained and what its determinants are. How some of the economies are able to gain growth year after year while others struggle with poverty. The gap between the rich and the poor has gotten even wider and the differences in per capita income levels are much larger today than they were one hundred years ago (Helpman 2004, 2). After the beginning of the Industrial Revolution the differences in income levels started to grow, and the gap between rich and poor countries has widened ever since. Today, the economies are divided into two highly polarized groups, the rich and the poor. Because there were no significant variations in income levels before the Industrial Revolution, the differences in today's income levels have to be accounted for the differences in economies' abilities to achieve long-term growth (Rodrik 2003, 1).

When assessing the economic performance of different countries, it is important to know the main elements of growth. In this chapter, the measurement of economic growth and the main determinants for achieving growth are discussed. After presenting the factors affecting growth, the most relevant growth theories are presented. In this chapter, the neoclassical model and the new growth theory are discussed.

### *2.1 Determinants of growth and its measuring*

The concept of economic growth describes how the potential to consume changes and how the living standards within a country develop over a long time span. In economics, the process of using inputs in order to produce output is illustrated by the concept of production function. The production function is an equation representing output as a function of inputs, which are capital and labour, and technology is needed to enable that production. The amount produced in the economy is finally what determines the extent and dimension of the economic growth.

The first important determinant of growth is the accumulation of physical and human capital. Physical capital is for example all the machinery and equipment that is needed in the production, whereas human capital refers to knowledge. The accumulation of capital is the most straightforward way to explain growth. It is fairly easy to think that as the amount of machinery increases, the amount of production increases. The second input, labour, refers to the fact that as more people are working, more output is produced. One important term in the production function is the level of existing technology. Technology is a very wide concept and it includes for example the knowledge of how final products can be produced from raw materials using labour and capital. The role of technology is to process inputs into different products and services. Hyytinen and Rouvinen (2005, 18) define the production function as a way to illustrate the interdependency of the inputs and the outputs. The existing technology, in turn, determines the effectiveness of the production process. The amount produced is thus the combination of physical and human capital, labour and available technology. In this framework the economic growth results either from an increase in the amount of capital or labour or from technological development.

Total factor productivity in turn is the increase in total output caused by other factors than increases in the amount of capital or labour force. There are many factors contributing to increases in total factor productivity, but most often it is increased by

technological progress. (Hyytinen and Rouvinen 2005, 17–18.) Helpman (2004, 22) argues that total factor productivity is at least as important factor as accumulation of capital in the process of growth. Total factor productivity is determined by the accumulation of knowledge and incentives to create new knowledge. The growth theories that are presented later in this chapter explain economic growth either in the terms of technological progress or by increases in the amount of inputs.

When measuring the rates of economic growth and comparing economic development between economies, simplifications are usually made. The simplest and most used measure of economic activity is the gross domestic product, GDP. Weil (2005, 301) defines GDP as the value of all income earned by the factors of production located in a given country. Almost equivalent term is gross national product (GNP), which covers also products and services produced by domestic producers abroad. When comparing income levels between different countries, GDP per capita is often used. It divides the value of the overall production by the amount of inhabitants or labour force in an economy. Thus GDP per capita is a much more comparable figure than the amount of total production. Although GDP per capita is a very limited gauge, it is used to measure the living standards of the inhabitants of an economy and even the welfare of them. In order to get more reliable figures, growth is usually measured as the change in GDP per capita figures where the fluctuation in prices is eliminated (Hyytinen & Rouvinen 2005, 18). Per capita income levels are usually measured either in some currency or in purchasing power parity (PPP), which is a currency equalising purchasing powers of different currencies to get more comparable figures.

### *2.2 Growth models*

There are two models of economic growth that has been most influential to the present growth study, namely neoclassical growth theory and new growth theory. Neoclassical growth theory is based on the assumptions of the neoclassical economics, i.e. variable proportions in the combination of capital and labour and constant returns to scale (Sato 1964, 380). This theory is also known as the Solow model because Robert Solow was one of the most influential economists who contributed to this theory in his article in 1956. The neoclassical growth theory aims to explain the economic growth in the long run. According to Hyytinen and Rouvinen (2005, 19) there are three important parts in the Solow model of economic growth. First, there is a production function which

represents how products and services can be produced using inputs. Second, the savings/investment ratio of an economy represents the possibilities of how an economy can finance the creation of new capital and make replacement investments. Third, technological progress represents how fast knowledge, which is needed to create economic value in a production process, increases.

The Solow model of economic growth is based on the assumption that production takes place under a neoclassical framework and is a combination of two inputs, labour (L) and capital (K). The neoclassical production function has three properties: First, there are positive and diminishing marginal products with respect to each input. For example, increasing the amount of capital increases the output by each additional unit of capital but as the number of machines rises, the amount of additional output decreases. The same property is assumed also for labour. Second, the production function exhibits constant returns to scale. That is, if each input K and L is multiplied by the same positive constant, λ, the amount of output is multiplied by the same amount, λ. Third, the marginal product of capital approaches infinity as capital goes to 0 and approaches 0 as the capital goes to infinity, and the same applies to labour. (Barro & Sala-i-Martin 2004, 26–27.) The model presented here is the neoclassical model with technological progress. The production process can be illustrated using a Cobb-Douglas production function.

$$Y = F(K, AL) = K^{\alpha}(AL)^{1-\alpha}, \quad 0<\alpha<1$$

where Y represents the total output, K is capital, L is labour and A represents the level of technology. The term AL in the equation can be interpreted to represent the labour force measured in efficiency units, which is the combination of the amount of labour and its productivity determined by the available technology (Mankiw 1995, 276). In order to get more comparable GDP figures, the model is constructed in per capita terms (Barro & Sala-i-Martin 2004, 2).

It is also important to notice that the Solow model does not explain where the technological progress comes from, but it takes it as exogenous and it can be used automatically regardless of the actions of the economy. However, the model reveals that the technological progress is the source of the sustained economic growth since growth achieved by population growth is only temporary. (Jones 1998, 33-34).

Despite the simplicity of the model, it has many good qualities. According to Mankiw (1995, 277) the Solow model has many predictions about the growth process that are actually broadly consistent with the experience.

- The economy approaches a steady state in the long run that is independent of initial conditions.

- The steady-state level of income is determined by the rates of saving and population growth. A higher rate of saving increases the steady-state level of the per capita income and a higher rate of population growth lowers the steady-state level of the per capita income.

- Technological progress determines the steady-state rate of growth of income per person.

- In the steady state, both the capital stock and the income are growing at the same rate, so that the capital-income ratio is constant.

- In the steady state, the marginal product of capital is constant and the marginal product of labour grows at the rate of technological progress. (Mankiw 1995, 277.)

The neoclassical growth theory has been criticised mainly because it takes the technological progress as exogenous and leaves the main source of growth unexplained. However, Solow (1994, 48) does not deny the importance of the technological progress as a determinant of growth. Solow claims that at least some of the criticism is a misconception of the theory. To say that the technological progress is exogenous does not mean that it is either constant or somehow erratic. The neoclassical theory has never tried to deny that at least some of the technological progress might be endogenous. Economies are using resources to pursuit new innovations, so it would be incorrect to think that this has nothing to do with the technological progress. However, the question according to Solow is that is it useful or even possible to make the process of innovation an endogenous part of an aggregative growth model. (Solow 1994, 48.)

Although the long-run growth rates are determined exogenously by this model, it has important implications about transitional dynamics. The neoclassical model predicts how an economy's per capita income converges towards its own steady state and also

how the income per capita levels across economies converge. (Barro & Sala-i-Martin 1995, 22.) This convergence property of the neoclassical model is important in the study of growth, and will be studied in more detail in chapter 4.

The new growth theory, on the other hand, consists of a group of theories developed in the 1980s. The new growth theory is also called the endogenous growth theory which refers to the fact that according to the new growth theory economic growth is created by the system itself and is not created by exogenous factors (Romer 1994, 3).

The neoclassical theory was criticised for failing to explain the source of the technological progress. This criticism helped to motivate the new growth theory in the 1980s. When the economy has reached its steady state in the neoclassical model, the growth results solely from the technological progress. Since the technological progress is such a significant factor in explaining the economic growth, the new growth theory tries to develop models of persistent growth that avoid the neoclassical assumption of exogenous technological progress. (Mankiw 1995, 280 & 296.)

There are many economists who contributed to this theory and not a single one can be pointed out as the most important one, but the article by Paul Romer in 1986 is considered to be one of the most important contributions to the theory. Romer's idea of what determines growth (1990, S72) is based on three premises. First, technological change is the single most important determinant of growth. By technological change Romer means improvements in the production process. The second assumption is that technological progress is in large part intentional activity by people who respond to changes in the markets. The third and most fundamental premise is the nature of technology. Once a new technology or a new way of doing things is discovered there is no need to invent the same thing again. In a sense, new technologies are like fixed costs because the new technology can be used again and again with no additional costs. (Romer 1990, S72.)

According to Jones (1998, 89–90), the new growth model endogenises technological progress, which is driven by research and development (R&D) in the advanced countries. This is because the knowledge of technology does not increase unless it is produced deliberately and actively by the firms and the society (Hyytinen & Rouvinen 2005, 21). One important feature of this model is that it describes the advanced

countries of the world as a whole, whereas the neoclassical model could be applied to different countries separately (Jones 1998, 89–90).

Another important feature of the endogenous growth theory is the absence of diminishing returns to capital when the capital is defined broadly. The simplest version of a production function without diminishing returns to capital is the so-called AK function, where A is a positive constant representing the level of existing technology. Although a global absence of diminishing returns to capital may seem unrealistic, it becomes more plausible if capital is seen in a broader sense including also human capital. (Barro & Sala-i-Martin 2004, 63.) Thus the definition of capital in the new growth theory differs from that of the previous models. The concept of capital is wider, since in addition to physical capital it includes the immaterial capital in the production function as well. According to the theory, all research, development and creation of new ideas increase the amount of immaterial knowledge in the economy. The notion behind this is that new knowledge makes it possible to produce more without raising the amount of physical capital or labour force. (Hyytinen & Rouvinen 2005, 21.)

The endogenous growth model can be represented using a production function

$$Y = K^{\alpha} (AL_Y)^{1-\alpha}, 0<\alpha<1$$

where the output, Y, is produced using a combination of the capital stock (K) and labour $L_Y$ with the stock of ideas, A. With a given level of technology, A, the production function exhibits constant returns to scale in K and $L_Y$ , but when the technology, or the stock of ideas is also an input in the production then there are increasing returns.

According to Mankiw (1995, 298), it is important to distinguish between the concepts of knowledge and human capital. Mankiw claims that there is an important distinction between these two terms, although they are sometimes treated as synonyms. Knowledge is what society knows about the world and its functioning and human capital refers to the resources used in transferring this knowledge to the labour force. The accumulation of human capital exhibits diminishing returns to capital, whereas knowledge may even exhibit increasing returns. This is why the source of perpetual growth in the endogenous growth model relies on knowledge. (Mankiw 1995, 298.)

Thus the rate of the long-run growth is determined by the parameters of the production function for ideas, and the rate at which the number of researchers grows, which in turn

is ultimately given by the population growth rate. Clearly, new ideas must be discovered in order to generate growth. More researchers mean more ideas which means sustaining growth. This occurs if the number of researchers is increasing as a result of an increase in the world population growth. (Jones 1998, 93–95.)

Even if larger markets stimulate more research and faster growth, the world population growth rate is a bit problematic way to explain economic growth. It seems fairly correct to think that more people mean more ideas, but it is not necessarily always the case. For example Romer (1990, S72) points out that population is not the right measure of the market size, and this turns out to be correct if the economies of China or India are considered. In these countries a large domestic market is not a substitute for trade with the rest of the world.

The main idea in the new growth theory is that the new knowledge allows production to grow without increases in the physical capital or labour inputs. It is also important to note that technological development is not exogenously given but a result of deliberate actions by policy makers. According to Hyytinen and Rouvinen (2005, 21–22) the most important insight of the new growth theory is that when the capital is defined broadly, the inclusion of knowledge as capital has positive externalities. This is because when broadly defined, capital does not exhibit diminishing returns. These externalities raise the productivity, because the knowledge resulting from a systematic effort used in research and development is not an ordinary commodity. It means that the knowledge is non-rivalrous and easily shared or the knowledge spills over to all the actors in the economy. Romer (1990) concluded that an economy with a larger stock of human capital will experience faster growth, and low levels of human capital in poor countries is one possible way to explain why underdeveloped countries have not been able to achieve higher growth rates.

When these two growth models, the neoclassical growth theory and the new growth theory are compared, there can be found many differences but also similarities in how they represent growth. Both models use a production function, where the output is defined by inputs and technology. The biggest difference is in the definition of capital, which is defined more broadly to include also human capital by the new growth theory. Also the role of technological development is seen a bit different in these two theories. When the neoclassical theory acknowledges the importance of technological

development in growth, it leaves it still outside the model. The new growth theory, in its turn makes technology an endogenous factor in the equation. Mankiw (1995, 308) concluded that even if the new growth theory is often seen as an alternative to neoclassical growth theory, it would be more correct to think of these two theories as complements. According to him, neoclassical theory continues to be the most prominent and useful growth model, but the interpretation of the model could be modernised. Especially the role of capital should be considered more broadly. Capital is important both because it has positive externalities and because labour income is largely a return to human capital.

The neoclassical growth theory continues to maintain its prominent role in the study of economic growth. Especially in the case of convergence in income per capita levels the neoclassical growth model has proven to have some correct predictions. The convergence property is studied in more detail in chapter 4. The importance of the new growth theory, on the other hand, comes especially from its broad definition of capital, which is more descriptive of today's world when most of the economic development is made in sectors that require human capital inputs. The amount of physical capital cannot be increased endlessly, due to its nature of diminishing returns. The human capital, on the other hand, has many important qualities, like its non-rivalrous nature and excludability.

## 3 ECONOMIC INTEGRATION AS DETERMINANT OF GROWTH

Basic models of economic growth that are presented in the previous chapter present growth as a function of inputs and technology. However, these models do not explain how or why capital accumulates, or how countries can achieve the latest technologies to improve production processes. One important way in which countries can absorb the latest technologies is through international trade. Thus it is interesting to study how openness in trade and integration into the world economy affect growth. Some of the researchers believe that reducing barriers to trade and liberalisation of capital movements have a positive effect on economic growth. However, this is not a uniform opinion for as some strongly support the idea that freer trade will automatically lead to faster growth, others claim that protectionism may be the best way to ensure the economic performance (Edwards 1998, 383).

In this chapter, the impact of economic integration on growth is studied in more detail. First, the so called deeper determinants of growth and their mutual causalities are presented. Then, economic integration, in the form of increased free trade and foreign investments, is studied. Also the roles of geographical location and quality of institutions are studied as aspects of integration.

### *3.1 Deeper determinants of growth*

Rodrik (2003, 4–5) argues that accumulation of capital and labour, and productivity changes are only proximate determinants of growth. According to him, there can be found also deeper determinants for growth. The most important deeper determinants of growth are integration, geography and institutions. These all factors are important in determining a country's access to resources, capital and latest technologies. They also help to use these resources effectively, which in turn determines the level of output produced and thus the rate of economic growth.

Economic integration relates to market size and the benefits from participating in international trade. This is usually measured as the level of openness to trade. Geographical location refers to the advantages and disadvantages posed by the country's location. Institutions refer to the quality of formal and informal systems that play a key role in promoting or hindering economic performance. (Rodrik 2003, 4–5.) Figure 1 presents the relationship of all these determinants of growth.

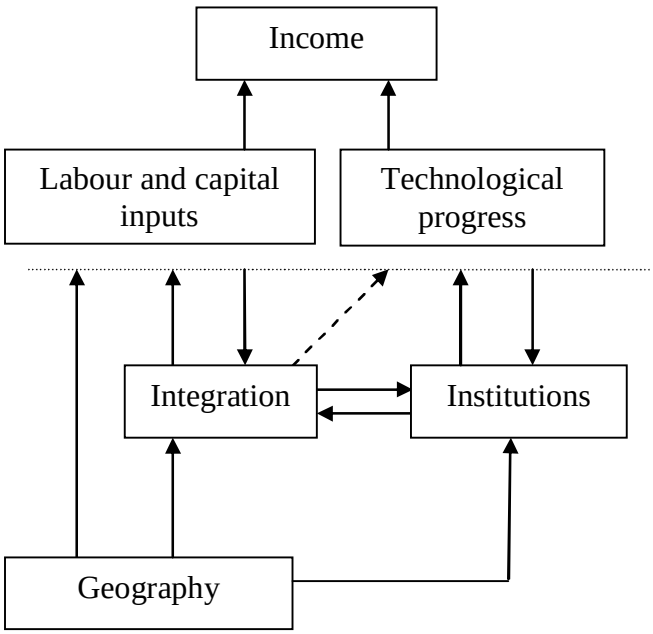


Figure 1 Determinants of growth (modified from Rodrik 2003, 5)

In Figure 1, the income is at the top of the diagram and all the factors affecting it are drawn below it. The most direct determinants of growth are labour and capital inputs and technological progress, as already stated in the previous chapter. In this figure, also the roles of geography, integration and institutions are presented as affecting growth, and their impact is mostly indirect. For example, trade is affected by geographic location and institutions, or the quality of institutions determines the level of technological development in a country, which in turn directly affects growth.

The causality links between the different growth enhancing factors presented above are quite straightforward. However, there can be seen more cause and effect links between these factors. It is quite obvious that integration, geography and institutions all play a role in economic growth. However, it is important to reflect these factors also vis-à-vis, not just as separate things causing growth. All these factors are interdependent of each other, so it is crucial to think of their causalities in more detail. First, the only exogenous factor, geography is being considered. Geographical location influences economic performance on many levels. It has a direct impact on income through country's access to natural resources etc. Geography has also an indirect effect on trade through its impact on distance to markets and the extent of integration. Countries that have an advantageous location can trade easily with other countries and thus have

a higher income level than countries that are landlocked or otherwise isolated. Finally geography, mostly in the form of climate and topography, has a strong impact on the quality of domestic institutions. Economic integration, in turn, can be defined as increased trade and investment flows between countries. It has a quite obvious direct impact on income as well as an indirect impact through institutions. Institutions can be regarded simply as consequences of higher incomes or of greater integration, but also as an independent determinant of income. Institutional environment affects mainly through improvements in property rights or the rule of law. Institutional stability provides incentives for technological innovations and thus leads to technological progress. Free trade can also be regarded as an institution, so it certainly has a crucial role in economic growth, either directly or indirectly. (Rodrik, Subramanian and Trebbi 2004, 133–134, Olsson 2005, 168.)

### *3.2 Economic integration*

In the present period of globalisation, the role of political and economic integration is very important. Globalisation can be defined as increasing integration of national economies and as a process of eliminating the relevance of economic borders (Weil 2005, 300–302).

There have been many reasons driving closer economic ties and economic integration. In this thesis, two significant factors are discussed in more detail, namely the role of free trade and foreign direct investments (FDI) in the process. Economic integration is to a large extent driven by free trade between countries, and the main benefits from trade to different countries come from economies of scale, specialisation and economies of scope (Cornett 2003, 3–4). Also FDI plays an important role in the integration process, since FDI creates more direct and deeper links between economies, and thus has a crucial role in the development of international relations. Foreign direct investments can be seen as a supplement to international trade, but also as a source of extra capital stimulating technology transfer and improving productivity of businesses. (Eurostat 2007, 3.) Economic integration has an important role in facilitating growth especially by allowing the latest technologies to spread more freely across countries. Poorer countries can imitate technologies from richer countries and thus have better production processes.

### *3.2.1 Openness in trade*

The level of openness to international trade is very important in determining countries' economic performance. In the world of increasing integration, it is almost impossible for a country to isolate completely from the world trading system. It is beneficial for countries to take part in international trade, since opening up to foreign trade affects positively income per capita levels. However, explaining why and how these changes are happening and what their effects are on different countries is not that simple to calculate. It is interesting to discuss the possible effects that deeper economic integration especially in the form of increased trade between member countries has on the economic development of these countries.

The problem with assessing the impact of international trade on growth is that there are no established gauges to measure the degree of openness of an economy. The most used ways to measure openness is to use either foreign trade to GDP ratios or the amount of existing barriers to trade. The former, the usage of ratio of imports plus exports to GDP has the advantage of capturing a broad definition of openness (Alesina, Spolaore & Wacziarg 2000, 1285). The latter, on the other hand, is quite difficult to measure exactly. However, rates of tariffs countries have imposed on others and other trade distortions have been used quite widely as an indicator of openness. Other ways to measure openness are based on completed data sets, like trade dependency ratios and rate of growth of exports (Edwards 1998, 384–385).

### *3.2.2 Gains from trade*

So far there are no uniform research results of the impact of international trade on income levels, although it is a topic that puzzles economists. Many researchers strongly believe that the openness to the world economy is good for a country's economic growth. The idea of achieving economic growth through trade is not a new one. The benefits of international trade have been of controversy for centuries. Already in the 18th century some of the writers considered trade to be beneficial for growth. Some argued that growth is contagious so that as one country reaches the path of economic growth it helps other countries to do the same. However, some thought that higher income levels in one country meant lower income in others so that opening up was thought to have a negative impact on the economic success of own nation (Elmslie & Criss 1999, 135.)

One of the most traditional ways to rationalise international trade as beneficial for a country's economy is the concept of comparative advantage. If a country has comparative advantage at producing some commodity relative to some other country, then this country should specialize in this product and trade it with other countries. Weil (2005, 318) compares the notion of comparative advantage to a form of technology. Trade makes a country more productive, just as technology, and thus allows it to produce commodities it is good at producing and then sell them to other countries in return for things it is not good at producing.

Many studies have shown that there really is a positive relationship between openness to trade and economic growth (e.g. Frankel & Romer 1999, Edwards 1998). By reducing barriers to trade a country can increase openness in trade and achieve better economic performance. Openness in trade has been one significant factor contributing to economic growth since almost all fast growing countries have opened their markets to international trade. However, the openness has not always been completely symmetrical process since in many cases exports have been promoted while imports are restricted in order to protect domestic markets. (Kiander & Vartia 2005, 229.)

Krugman (1993, 364) argues that the broad argument for free trade is essentially political: free trade is almost the perfect policy, while deviation from it causes more harm than good. To support this view, Krugman presents two points. First, if there are two countries with relatively big market power, both countries have an incentive to exploit their market power by imposing an optimal tariff. However, this would lead both countries to a situation where they are both worse off than in a case of adopting free trade policies. In this situation, free trade could be the best solution for these countries, even if it would not be the optimal policy it would be the simplest and easiest to define and monitor. Second, countries may set tariffs to redistribute income to selected producer groups. This can also been seen as a prisoners' dilemma situation. In a country where all the interest groups get the protection they want, the net effect might be to do the interest groups worse off than in a case of prior commitment to free trade. In this case too, free trade may not be the optimal policy, but it is the simple solution to negotiate and enforce. (Krugman 1993, 364–365.)

The benefits from forming free trade areas can be presented using the trade creation and trade diversion theorems. The idea of trade creation and diversion can be

illustrated using a single commodity X in a three country A, B and C model. The price of commodity X in these three countries is shown in the first row in Table 1.

Table 1 Trade creation and trade diversion in a three-country model

| Country | A | B | C |
|---|---|---|---|
| Price | 35 | 26 | 20 |
| 100 % tariff | | 52 | 40 |
| 50 % tariff | | 39 | 30 |

(Markusen et al. 1995, 314)

Country A is a high-cost producer, so in free trade A would import X from country C, since the price of X is clearly cheapest there. If country A would impose a tariff of 100 %, the prices from B and C would rise to correspond prices shown in row 2 in Table 1. Then the imports from both countries would be too high and it would be cheapest to produce X at home instead of importing it. Thus the 100 % tariff is prohibitive. If A forms a free trade area with either B or C, welfare would be improved since the commodity X could be imported either at a price of 26 or 20. The formation of a free trade area with either country is referred to as trade creation.

Trade diversion, on the other hand, would occur if A imposed a tariff of 50 %, in which case the prices in B and C would be as is shown in row 3 in Table 1. In this case, it would be cheaper to import X from C than to produce it at home. The domestic consumers would pay a price of 30, but as a whole the economy would be paying only 20, since some of the price of X would be collected by domestic government as tariff revenue. Now, if A forms a free trade area with B, the price of X would be 26 in B and 30 in C. This would divert consumers' purchases from C to B. This is referred to as trade diversion, since forming a free trade area reduces domestic welfare. Instead of paying the actual price of 20 they are paying 26. This simple model suggests that preferential trade agreements resulting in trade creation are welfare-increasing and trade-diverting preferential trade is welfare reducing. (Markusen, Melvin, Kaempfer & Maskus 1995, 314–316.)

In the previous example it was shown that imposing tariffs can have a positive or a negative impact on commodity prices in a country. Since these prices are faced by domestic consumers, tariffs and other trade distortions have a direct impact on the

welfare of the citizens. Krugman (1993, 364) found that when a tariff was imposed on the US automobile industry, modest gains were achieved. However, when the domestic production was first subsidized and then a tariff was imposed, the gains from the tariff were quite trivial. In this case, the reason for posing the tariff was to correct a domestic distortion rather than exploit market power in international trade. It is also worth noting that removal of regional borders while maintaining trade barriers with the rest of the world can result either in trade creation but also in trade diversion. Spolaore & Wacziarg (2005, 33–34) found in their study that in a hypothetical world of two or more countries, the removal of only one border will result in trade diversion in the merging market compared to the rest of the world, with adverse effects on growth and income.

In addition to trade creation and diversion theorem, there are also other ways to analyse the impacts of trade on growth. One is the factor price equalization (FPE) theorem. According to the theorem, if a country takes part in free trade then the factor prices in the country should equalise with the world factor prices. Thus free trade should lead to convergence of factor prices. International trade also mediates international flows of technology. Since international technology flows affect factor prices, they have an effect also on per capita income levels. (Slaughter 1997, 196.) Another way to analyse the correlation between trade and growth is to consider total factor productivity (TFP). TFP can be defined as improvements in the production technologies, and there are different sources for that. First, total factor productivity can be increased by a domestic source associated with innovation. The rate of domestic innovation is assumed to depend on the level of education, i.e. the level of human capital. Second, there is an international source related with the country's ability to absorb or to imitate technological progress from more developed countries. This source depends on a catch-up term, which means that countries with a lower stock of knowledge have a tendency of imitating new technologies faster than those countries with higher initial levels of knowledge. Also, more open countries have a greater ability to absorb new ideas from the rest of the world and thus the knowledge gap is diminishing with countries with higher initial knowledge stock. Countries that liberalise trade will experience transitional productivity growth, and the growth is faster than in countries that maintain trade distortions. Thus total factor productivity is positively affected by the level of human capital and openness of trade. (Edwards 1998, 387.)

### *3.2.3 Foreign direct investment*

In addition to international trade, foreign direct investment is also an important driver of closer economic ties between countries. Foreign direct investment can be defined as an international investment, in which the investor acquires at least 10% in an enterprise located in another country. For the investor, FDI means access to new markets and better knowledge of those markets. For the target country, FDI contributes positively to economic growth and balance of payments. Since FDI flows are usually less volatile than portfolio investments they reduce the risk of external speculation and liquidity crises. (Eurostat 2007, 22–23.)

One of the most discussed and important ways, in which FDI facilitates growth, is through its impact on total factor productivity, as well as on diffusion and assimilation of technologies across borders (Barrell & Pain 1997, 1770). Since technology is one of the main elements contributing to total factor productivity and thus in gaining growth, it is important to find ways in which poorer countries could acquire the latest technologies. Also free trade can be seen as a way to facilitate the diffusion of technology, but FDI can be even more efficient in that, and the importance of FDI in technology diffusion has been emphasised in the literature. FDI can be seen as complementing free trade but also as an independent factor to the extent that as the FDI inflows are included, the role of free trade loses its importance in the diffusion of technology (Hejazi & Safarian 1999, 491). Also Keller (2004) and Alho, Kaitila and Widgrén (2005) argue that FDI has a crucial role in international technology diffusion and thus in boosting countries' TFP levels.

### *3.2.4 Integration process*

There are many causes that have driven integration in the past decades. Weil (2005, 303–306) distinguishes two factors as the major forces underlying this process. The first major cause to increased openness is technological progress, which has increased the mobility of goods and information. The price of transportation has fallen dramatically since the beginning of the 1900s and at the same time transporting goods has become faster and faster. Transportability of goods has equalised the prices according to the law of one price and has led to increased economic integration. Technological developments have increased the flows of information. Easier access to current information is valuable from both trade and capital investment point of views.

Information transmission has also gotten cheaper, which in turn has allowed new types of trade to be feasible. In addition to the traditional trade in goods, services have become subject to trade. This is the case especially in the field of services requiring higher education, e.g. information-based services.

The second important force driving free trade according to Weil is trade policy and changes and relaxations of it. Barriers to trade and other trade restrictions are the oldest forms to regulate the movement of goods and factors of production. One important factor behind the current wave of globalisation is that there has been a series of reductions in trade restrictions. First reducing tariffs and quotas was negotiated under the General Agreement on Tariffs and Trade (GATT) and later its successor, World Trade Organization (WTO). Overall, average tariff rates have fallen significantly in industrial countries, whereas in developing countries tariff rates are still relatively high. (Weil 2005, 303–306.)

There are different levels of economic integration, varying from free trade areas to complete forms of economic integration. The differences between these phases of integration are mainly on the level of free trade and the commitment to shared policies. These different stages of integration are presented in Table 2.

Table 2 Stages of economic integration

| Stage | Definition | Comments |
|---|---|---|
| Free trade area | Removal of tariffs and quotas within group | Removal of barriers, GATT/WTO |
| Customs union | Common tariffs, suppressing discrimination for CU members in product markets | Removal of barriers, GATT/WTO |
| Common market | No restrictions on factor movements, no invisible barriers to trade | |
| Common market (extended) | Service sector included, removal of all invisible barriers | EU internal market program, elements of positive integration in specific sector policies |
| Economic and monetary union | A common market with some degree of harmonisation of economic policy, common currency and monetary system | Euro/European Central Bank, convergence criteria, elements of positive integration |
| Complete economic integration | Unification of monetary, fiscal, social and countercyclical policies, supranational authority where decisions are binding for member states | Centralised economic policy making, supranational institutions with joint decision making |

(Cornett 2003, 4)

In this table, the level of economic integration is classified according to level of economic cooperation and institutional commitment. The main benefits from trade can be captured already on the lowest level of this taxonomy, namely by joining a free trade area. The tighter economic integration, the more important a joint system of policy making becomes. (Cornett 2003, 4.)

The increased integration within the European countries is a good example of how openness in trade has affected different countries. There are two basic forms of integration – customs unions and free trade areas. Customs union represents a deeper form of integration, since it requires also commitment to the union's trade policies. Using the above mentioned taxonomy, the European Union has been developing from a free trade area to customs union, and today the main aim is to achieve a functioning single market covering the member countries. Increased integration within the European Union definitely changes trade relations inside the Union and also in relation with external trade partners. Since the European Union is an internal market for its member states, joining the Union is likely to shift the patterns of foreign trade to involve only other member countries. Since the trade barriers are lower within this widened

domestic market, it diverts imports and exports from the third markets to internal market. Lower trade barriers also create trade within the EU, which is an additional welfare gain for the member countries. This increased welfare can also benefit other countries outside the Union through increased demand. (Sulamaa & Widgrén 2005, 1.)

It is assumed that the new member countries will benefit from joining the union, mostly through access to bigger domestic market. Since national borders constitute barriers to economic exchange, economic integration entails a country to enjoy the benefits of larger market, reduction of trade costs and scale effects (Spolaore & Wacziarg 2005, 34). These in turn have a positive impact on economic growth. It can be also argued that economic integration is beneficial especially for smaller countries. Alesina et al. (2000) found that since political boundaries determine the market size in a world of trade restrictions, then free trade benefits small countries by increasing the size of their domestic markets. If a country's productivity level is determined by its market size then with free trade the size of a single country is irrelevant for the size of markets and the country size becomes unrelated to its productivity. Thus forming a trade bloc would be beneficial especially for small countries that were previously at a disadvantage due to their size. Alesina et al. (2000, 1278) developed a model of geography and trade and they provided empirical evidence on two implications of the model. First, the effect of country size on economic growth is mediated by the degree of openness. Second, the long-term history of country formation and separation has been influenced by the pattern of trade openness and economic integration and vice versa.

One of the European Union's main goals is to create a functioning single market by reducing trade barriers and enabling its member countries to trade more freely in this single domestic market. When the effects of economic integration are evaluated, it is clear that it certainly has an impact on countries' economic performance (Okko 2003, 6, Spolaore & Wacziarg 2005, 34). European Union is mainly an economic union, and political decision making is left to national governments. However, the European integration has also a political aspect since, for example, countries' national institutions are largely shaped by the EU membership. Whereas economic integration has been found to affect growth positively, Spolaore and Wacziarg (2005) found that complete removal of political barriers was not growth-enhancing on average. In fact, political integration had a slightly negative effect on economic growth. On the contrary, integration of domestic markets while remaining politically independent tends to

increase growth on average. Thereby one promising way to have higher growth would be to increase the market size by lowering barriers to trade while maintaining political independence. This result is quite consistent with other studies that reducing barriers to trade and extending the domestic market size are beneficial for growth.

One interesting finding in the study of economic integration is that as more countries join a certain preferential trade area, it increases pressures on countries that are still outside the area to join too. As regional integration tends to deepen towards the centre of the union, it increases the significance of this union to its bordering regions. To ensure their trade relations and economic welfare, these border regions have to negotiate better trade agreements with the union or even join it. This is called the domino theory of regionalism (for example Baldwin 1995) and it is based on the impact of trade creation and trade diversion in determining a nation's decision to join a trade bloc. Baldwin and Rieder (2007) have empirically tested this model on the European data during a period 1962–2003. There have been three waves of domino effects in Europe since 1958, and this supports their finding that the size of the EU and its degree of integration have a significant impact on countries' willingness to join the union. Primarily the likelihood of accession is driven by economic factors, like the gains for exporters from joining a preferential trade area or getting discriminated when staying out. There are also economic losses in the case of joining, mainly for import-competing industries in the country's home market. Also the non-economic factors, like the public's resistance to joining have to be taken into account. The domino theory asserts that as the economic integration deepens, it triggers membership requests in countries that previously found it politically optimal to stay out. Thus Baldwin and Rieder found a correlation between the degree of integration in Europe and EU enlargement measured by membership requests. All in all, there are three key factors explaining a country's desire to join a trade bloc: The share of a country's exports going to the bloc, the degree of trade creation and the degree of trade diversion. The main results from the empirical study were that non-members are more likely to join when trade diversion and creation are high. Especially important is the trade diversion impact, which suggests that the avoidance of trade diversion has a more important role in the willingness to join than the quest for trade creation opportunities. (Baldwin and Rieder 2007.)

The results of economic and political integration can be seen in the European Union. In this integration process, trade has played a significant role. As the domino theory suggests, in many European countries that have joined the union, the share of exports to EU countries has been significant already before their accession. It is beneficial for countries to join the union, when their main trade partners are already members of the union. Also the importance of geographical location has been an important factor facilitating integration. This is also the case in the enlarged European Union, where the integration has covered geographically neighbouring countries. Before a country is qualified for applying membership certain prerequisites have to be fulfilled. One of these prerequisites is the condition of existing institutions. All the member countries have to meet the criteria set for a market economy and in most of the new member countries the progress towards achieving fully-fledged economic and financial institutions is still somewhat unfinished.

The basic idea behind forming the European Union was to assure economic development and political stability in Europe. During the last fifty years, the Union has enlarged in many occasions, and the homogeneity of its member states has been diminishing as the number of member states has increased from initial six members in 1952 to 27 members in 2007. However, the European Union has been able to both widen and deepen the economic integration in Europe and develop towards a functioning single market, where the benefits of free flows of trade and investments would benefit all its member states.

### *3.3 Geographical location*

Geographical location is an important factor generating growth, both affecting directly a country's ability to produce more income through its natural resources and indirectly by stimulating international trade and thus growth. Geography is one of the most important determinants of openness to trade, and when considering countries' economic performances, geographical location cannot be left outside the consideration. Countries where costs of openness are lower due to geographical location will have a greater level of openness (Spolaore & Wacziarg 2005, 16). For example Weil (2005, 432) and Rodrik (2003, 6) have found a positive correlation between countries' income per capita levels and geographical location measured as distance from the equator. Frankel and Romer (1999) claim that integration and increase in trade is mainly driven by a

country's location. They argue that trade itself does not cause growth but the geographical characteristics have important effects on income through their impact on trade. It is more beneficial to trade or to form free trade areas with countries that are geographically close. Also Weil (2005, 328) has found evidence on the fact that countries that suffer from their geographical location and are less able to participate in the international trade will experience lower income. Geographical location is thus very important factor in economic growth generated by free trade.

According to Rodrik (2003, 5) geography is important in determining growth since natural resources available for a country are largely shaped by it. Country's location also determines the extent to which a country can become integrated with world markets. The costs of integration are greater for a country with distant location. Martin and Ottaviano (2001, 947) argue that geographic location and economic growth are directly linked to each other. Economic activities tend to concentrate in certain regions, and this spatial agglomeration and economic growth are parallel processes. They found a circular causation between the geographic location and growth: Growth through innovation spurs geographical concentration of economic activities, which in turn lowers the cost of innovation and thus leads to higher growth.

As the geographical location is an important factor driving growth, it is also important when considering the patterns of income level convergence or divergence. As there is a tendency of capital and factors accumulating in certain regions leading to agglomeration of production, it has a significant impact on regional development. The geographical location thus attributes to economic growth and development in many ways. That is why the role of location is relevant for this study also. From the perspective of the Central and Eastern European countries the geography matters, since it is the main driver of economic integration which is largely determined by trade between European countries.

### *3.4 Role of institutions in integration*

In order to be able to reap the benefits of international trade, it is crucial that the institutions in an economy are sound enough. The role of institutions is especially important in the emerging markets, which in many cases are still struggling to become functioning market economies.

There are different kinds of economic, financial and political institutions that are vital for a functioning economy. According to North (1990, 3) institutions can be defined as the humanly devised constraints that shape the human interaction. They structure political, economic and social interaction – they are the rules of the game. Institutions can be both formal rules and informal constraints and the way these are enforced (North 1991, 97 & 1997, 2). Formal institutions cover for example laws, regulations, property rights and constitutions. Informal institutions on the other hand are different kinds of norms, conventions and internally devised codes of conduct. Economic institutions, like the structure of property rights and the functionality of markets are of particular importance for a country's economic performance. They also influence the structure of economic incentives in the society, they help to reallocate resources to their most effective usage, and they also determine the allocation of profits by rewarding appropriately the providers of labour and capital, and protecting their property rights. (Acemoglu, Johnson & Robinson 2004, 2.)

One of the most important notions of the role of institutions is that they are vital in the process of change. Since institutions affect the performance of economies, it is hardly controversial that institutional change shapes the way societies evolve over time. Institutions are important in the process of change because they provide a structure to everyday life and more generally, they structure the behaviour of the whole economy. (North 1990, 3.) When the integration process is considered, the institutions are also important in capturing the gains from trade. As trade expands and the size of the market grows, the possibilities for conflict over exchange grow (North 1997, 98–99). Then effective institutions are needed to balance these conflicts so that exchange does not endanger.

Economic institutions are closely related to political institutions. Political institutions determine the distribution of political power, which includes also economic institutions and the distribution of resources. Economic institutions, in their turn, also shape political institutions by determining the relative welfare of different groups in the society. As these various groups gain more affluence, they can use their economic power to influence political institutions in their favour. This kind of a deduction suggests two broad conclusions. First, good institutions are most likely to function in an environment in which small groups are not able to take advantage of a monopoly position in particular industry or privileged access to natural resources. This is called a rent-free

environment, which refers to a situation where various groups seek to create value through mutually beneficial economic activity, not by pursuing uncompensated value from other economic agents. Second important feature of good economic institutions is that they are likely to be accompanied by good political institutions. If political power is broadly shared, there is less risk of groups with political power taking advantage of their position. (World Economic Outlook 2005, 126.)

It is also worth noting that institutions are endogenous; they are at least in part determined by society. This endogenous nature of institutions is one reason why some countries are poorer than others – poorer countries simply have worse economic institutions than the rich countries. (Acemoglu et al. 2004, 2.) Rodrik et al. (2004, 135) found quite strikingly that the single most important factor contributing growth is the quality of institutions. Rodrik et al. claim that the quality of institutions trumps everything else. The impact of institutions is so significant that once the institutions are controlled for, integration has no direct impact on growth while geography at best has only a weak direct impact on income. In their empirical study, Rodrik et al. found that trade actually can have a negative sign in the growth regression, but institutional indicators, like property rights or the rule of law always have a positive sign and are statistically significant. Also Acemoglu et al. (2004) argue that institutions are the most important source of economic growth. According to them, differences in economic institutions are the major reason for differences in cross-country growth experiences. These institutions determine the potential for economic growth and also distribute resources such as capital among different groups in society. However, these results seem rather extreme by stating that institutions can alone determine the welfare of a country. It has to be remembered that institutions are part of functioning economies, and despite their important role in a market economy there are also other factors determining the level of growth and welfare in different countries.

The issue of building institutions is especially crucial in all emerging markets, as in the former planned economies of Central and Eastern Europe. The development towards marker economy began in these countries in the turn of the 1990s, and the development of market institutions has been an integral part of this process. It would be incorrect to say that in socialist countries there were no institutions, since the definition of institutions is broad and includes also informal institutions. However, in market economies the role that sound institutions play is much more significant that it were in

socialist countries. The whole economic structure was completely different and the economic achievements were based on accurate plans made by the government. When the markets were ignored, gains from trade were wasted and resources were misallocated (Acemoglu et al. 2004, 2). When the communist era was over, all the countries faced a new kind of situation, in which their economic performance was influenced by the market forces. That is one reason why the ability to build good institutions is very crucial in these countries. Good institutions can help in building credibility in the eyes of Western countries, and thus in building trade relations. According to North (1990, 107), institutions are the underlying determinant of long-run economic performance of economies. That is why it is crucial that the governments invest in the institutional structure and enforce laws that enable the market exchange also for foreign players. Institutional stability is also the key to capture the gains from trade, which is of essential importance for emerging economies that are taking part in the integration process.

In the eight Central and Eastern European countries that are discussed in more detail in chapter 5, the institutional development is still in progress in many respects. That is why it is worth considering the institutions that actually are relevant, when the economic development in these transition economies is studied. The most important indicators of institutional change are the level of large-scale and small-scale privatization, price liberalization, reform of financial institutions including banking sector and infrastructure reform (EBRD 2006). Integration process with the Western European countries has certainly facilitated the institutional development in these countries. The required institutional reforms of a market economy can me measured in various ways, and the results from these reforms for the case countries are presented in chapter 5.

## 4 CONVERGENCE IN INCOME LEVELS

When comparing growth performances of different countries, it is obvious that some countries are growing faster than others. The convergence hypothesis suggests that poor countries should grow faster than rich countries and the income per capita gap between the rich and the poor should be narrowing over time. In this chapter, the convergence hypothesis and the formal definition of convergence are presented.

The convergence feature has been most often linked to findings of the neoclassical growth theory, whereas the new growth theory does not predict convergence as such.

In this chapter, the convergence is discussed from the points of view of these two growth theories that were presented in chapter 2. Convergence has been quite largely studied empirically by using large country samples. Many empirical studies have found that convergence is actually occurring in many parts of the world, and some of these findings are presented in this chapter.

## *4.1 The convergence hypothesis*

One of the most important and interesting issues related to economic growth is the convergence hypothesis. Are the poor countries catching up the rich ones, or is the gap between these two worlds permanent? Income level convergence can be defined in various ways, and these definitions are presented in the following.

### *4.1.1 Definition of convergence*

The simple definition of convergence is that the poor countries experience faster economic growth than the rich countries (Mankiw 1995, 284). According to this definition, the poor should reach the income per capita levels of the rich at some point. According to the convergence hypothesis the differences in per capita income levels between two economies will be transient as long as the economies have identical technologies, preferences and population growth rates (Durlauf 1996, 1016).

There are two definitions of convergence in the growth literature (Sala-i-Martin 1996, 1020-1022), namely β-convergence and σ-convergence. The former means that there is a negative relationship between the initial level of the per capita GDP and its average growth rate. This implies that poorer countries grow faster than richer countries, so that they would eventually catch up the rich. In addition, β-convergence can be either absolute or conditional. According to its definition, absolute β-convergence is the tendency of the poor countries to grow faster than the richer ones, as already stated. This can be formalised as follows. Economy i's annual growth rate between t and t+T of GDP is

$$\gamma_{i,\,t,\,t+T} \equiv \log(y_{i,\,t+T}/y_{i,\,t})/T$$

and $\log(y_{i,\,t})$ is the logarithm of economy i's GDP per capita at time t. Then the following regression can be estimated

$\gamma_{i,\,t,\,t+T} = \alpha - \beta \log (y_{i,\,t}) + \varepsilon_{i,\,t}$

If $\beta>0$ then it can be said that the data set exhibits absolute β-convergence. (Sala-i-Martin 1996, 1020)

Conditional β-convergence, on the other hand, is defined so that the growth rate of an economy is positively related to its distance from its steady state of growth. So if all economies are converging to the same steady state levels, the initially poorer must grow faster because it is further away from its steady state level and thus conditional β-convergence is achieved. (Sala-i-Martin 1996, 1026.) In other words, conditional β-convergence means convergence towards the steady state, which is determined by the investment rate (Weil 2005, 67).

The σ-convergence in its turn means that a group of economies are converging if the dispersion of their real per capita income levels is decreasing over time. This means that $\sigma_{t+T} < \sigma_t$, where σt is the time t standard deviation of $\log(y_{i,t})$ across i. These two concepts of convergence are related, in the sense that the existence of β-convergence is a necessary condition for the existence of σ-convergence. Also worth noting is that β-convergence tends to generate σ-convergence, since if the poor country grows faster than the initially richer one, then the levels of income per capita of the two economies become more similar. However, it is possible for the poor countries to grow faster than the rich countries, so that the income per capita levels never interact. So at least in theory it is possible to have β-convergence without having σ-convergence as a consequence. Figure 2 represents the relation between these two forms of convergence.

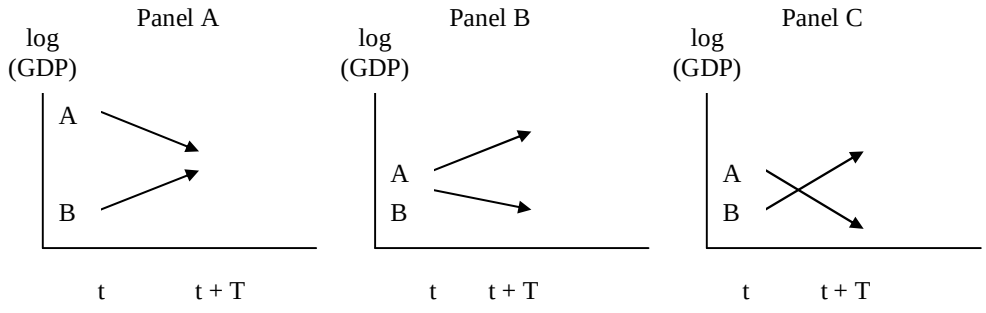


Figure 2 The relation between σ and β-convergence (Sala-i-Martin 1996, 1021)

In Figure 2, there are two economies, initially richer A and initially poorer B. The horizontal axis represents time and the vertical axis is the logarithm of a country's income per capita at time t. Convergence is usually measured as a logarithm of per capita output. Suppose there is data from these two economies, from two discrete intervals, t and t+T. Panel A is an example of the existence of β-convergence and its association with σ-convergence. It can be seen that as the initially poorer economy B is growing faster than the economy A (β-convergence), the income per capita levels tend to converge over time (σ-convergence). In panel B, there is a lack of β-convergence, so the initially richer country grows faster and the income per capita levels of the two economies will never converge. The lack of β-convergence leads to the lack of σ-convergence. The rich becomes richer and the poor stays poor. Finally, in panel C, the poor country grows faster than the rich country, so β-convergence exists. However, the rate of growth of the poor economy B is so much faster than that of the rich country A, and no σ-convergence exists. It is worth noting that although β-convergence is a necessary condition for σ-convergence, it is not a sufficient condition. (Sala-i-Martin 1996, 1020-1022.)

Of these two notions of convergence, the σ-convergence is more interesting when the behaviour of the cross-country variance of output over time is regarded. As it has already been stated, β-convergence is only a necessary, not sufficient condition for the dispersion of per capita income to reduce. σ-convergence is theoretically interesting if there is a common equilibrium across countries and the speed of convergence towards countries' steady states is the same across countries. If this assumption does not hold, the movement of cross-sector variance of income over time reflects only initial conditions, the evolution of the dispersion of the country-specific equilibria and the rate of adjustment in each country. Then individual countries would be converging to their own equilibria, whereas cross-country equilibria could be even diverging. (Lee, Pesaran & Smith 1997, 358.)

One presumption for faster growth is that the poorer countries have to be capable of learning and adopting new and more efficient technologies and production processes. If the poorer countries have the necessary capital and know-how needed for the diffusion of technology, they are able to benefit from the technological progress. As the convergence driven by the better production processes proceeds, the poorer countries

will need to become innovators themselves. As this happens, the speed of convergence is eventually expected to slow down. (Kaitila 2003, 1.)

### *4.1.2 Convergence according to growth theories*

The neoclassical growth model, as described in chapter 2, predicts that each economy will converge to its own steady state, which is determined by its saving and population growth rates (Mankiw 1995, 284). The neoclassical model predicts convergence if countries are similar in their preferences and technology, when the poor countries should grow faster than the richer ones (Barro & Sala-i-Martin 1992, 224.) Convergence is based on the assumption that the only difference between two economies is their initial levels of capital. According to Sala-i-Martin (1996, 1025–1027) the implicit assumption of diminishing returns to capital in the neoclassical production function predicts that the rate of return to capital is very high when the stock of capital is small and vice versa. Then the countries with small capital stocks are poor and will grow faster than rich countries with large capital stocks.

There are three predictions based on this notion of convergence towards the steady state. First, if two countries have the same rate of investment but differ in their levels of income, then the lower income country will have higher growth. These two countries have the same steady-state levels of income because their investment rates are the same. Second, if two countries have the same level of income but differ in their levels of investment, the country with a higher rate of investment will experience higher growth. Third prediction is that if a country raises its level of investment, then it will have an increase in its rate at which the income grows. If this country was initially at its steady state of income, then the steady state will be raised by the increase in investment. Because the steady state is now higher, the income is below its steady state and country will experience growth. (Weil 2005, 68–69.)

According to Sala-i-Martin this aspect in the neoclassical model predicts cross-country β-convergence, which is associated with a reduction in cross-economy dispersion of income over time, i.e. σ-convergence. As the capital stock is growing in the initially poor economy, its rate of economic growth declines and finally goes to zero as the economy reaches its steady state. Worth noting is that what the neoclassical model predicts is conditional β-convergence, meaning that poor countries grow faster than

richer countries because they are further away from their steady state levels. (Sala-i-Martin 1996, 1025–1027.)

The new growth theory, on the other hand, does not predict convergence as such. The basic division between the neoclassical theory and the new growth theory is that the former predicts convergence whereas the latter does not. In the new growth theory, the diminishing returns to capital are absent, while the convergence property of the neoclassical theory is mainly explained by them. Since the growth rate is independent of initial level of k and y, the new growth theory lacks any transitional dynamics (Barro & Sala-i-Martin 2004, 226). However, there have been made modifications to the endogenous growth model by allowing it to predict convergence. In these modified models, the income convergence is usually driven by technological progress (e.g. Ortigueira & Santos 1997) or by human capital convergence (e.g. Tamura 1991). These models rely on the spillover effects in explaining convergence.

When large country samples have found only little evidence of convergence, it leads to the conclusion that the new growth theory manages to explain growth a bit better. Actually the new growth theory was originally developed much due to the fact that despite the assumption of convergence by neoclassical growth theory, in reality cross-country convergence was absent in many large country samples. Instead of one steady state, the world is better characterised by multiple steady states, and convergence is mostly local (Tamura 1991, 535). If countries are allowed to have different steady states, then neoclassical model predicts conditional convergence. Also models of endogenous growth that exhibit some form of transitional dynamics can be consistent with conditional convergence. (Mankiw 1995, 307.)

It is also interesting to consider factors outside these two models that actually lead to convergence in income per capita levels. Economic integration in the form of increased trade and foreign investment is one driver of income convergence. According to Weil (2005, 328), international trade as such has a positive impact on growth rates on many levels. First, openness leads to convergence of per capita income levels, since poor countries that are open to trade grow faster than rich countries, while closed and poor economies grow more slowly than rich countries. Second, opening up to the world economy leads to faster growth, whereas closing markets leads to economic slowdown. In many cases, countries are considered to exist independent of each other.

However, there are important linkages between economies driving convergence. Free trade is one of these, and the second is free flows of technology. (Slaughter 1997, 194.) Technology has a crucial role both as a driver of growth but also as a driver of income convergence. Since productivity is the key in explaining income variation between countries, and technological development explains differences in productivity levels, then the diffusion of technology helps to explain the income differences. Technology and economic integration also have a close relationship, since two important channels for technology diffusion across countries are international trade and foreign direct investments. (Keller 2004, 752.) The interdependency of growth rates between economies can be explained by knowledge flows across borders, and that the incentives to innovate and use new technologies are stimulated by foreign trade and investments (Helpman 2004, 60). Economies thus affect the performance of other economies as well. Poorer countries can benefit from the wealthier ones by learning from the past experience of the richer countries, and by acquiring new technology already invented so that they can raise their productivity and material welfare faster than it was possible for the technologically cutting-edge economies of the day (Kaitila 2003, 1).

### *4.1.3 Divergence*

At the moment, the world's countries are quite clearly divided into two groups – the rich and the poor. During the last decades the dispersion of the world income has not changed significantly, and the poor have remained poor and rich have remained rich. Even if the neoclassical model predicts convergence in per capita income levels, in reality the case is quite the reverse in many countries. For example Sala-i-Martin (1996) found in his study a tendency for divergence in many cases. Sala-i-Martin concluded two things from this unfavourable development. First, there is evidence for σ-divergence, as instead of cross-country income inequality disappearing, it is increasing over time. Second, the countries which are predicted to be richer in the future are already rich today, which means β-divergence.

One theoretical reason for increasing per capita income divergence is that as already stated, even if conditional β-convergence takes place, it is not a sufficient condition for σ-convergence. It means that when the poor countries have higher growth rates than the richer countries, it tends to reduce dispersion of per capita income, but in many

cases this is offset by new disturbances increasing dispersion. These disturbances can be changes in either production conditions or in preferences. Even if a pair of countries is converging, β-convergence might not be strong enough to generate σ-convergence. In the absence of random shocks, convergence towards the steady state is direct without fluctuations and overshooting, and the country with initially lower level of per capita income is expected to stay behind the initially richer country. (Barro & Sala-i-Martin 2004, 462–463.)

Economic integration can also be one reason driving divergence. In the European Union, there has been made a division between the rich core and the poor periphery. In the past decades this problematic grouping of countries has lost its significance, as the peripheral regions have been able to catch up the core regions. The positive catch up has been driven largely by EU's cohesion policies and structural funds aiming at the development of the peripheral countries. However, the problem of peripheral regions is now important again, much due to significantly lower levels of income in the new member countries. Integration process can either bring convergence or lead to increasing divergence between the member states. As the production and the latest technologies tend to be concentrated in certain regions, these regions are able to maintain the high levels of income whereas the poorer regions lose their factors and labour force to the richer regions (Martin & Ottaviano, 2001, Krugman 1991). Integration can also reduce the income disparities by allowing capital and qualified labour force to move freely to regions where they can earn higher returns. The poor regions, on the other hand, can absorb the latest technologies and thus grow faster and catch up the richest regions.

### *4.2 Empirical studies on convergence*

The neoclassical assumption of convergence has attracted the interest of many researchers at least since the 1980s when it became apparent that in the real world the poor countries are not necessarily catching up with the rich countries, and thus the gap between them is not narrowing as the neoclassical model suggests. There has been a relatively large number of convergence studies made on large country samples and the results have varied. Mankiw (1995, 284) argues that the existence of convergence depends largely on the sample being studied. When comparing the growth rates of relatively homogenous economies, it is more probable that evidence of convergence

can be found. These kind of homogenous countries are for example the countries of the OECD or the states of the USA. However, when the economies differ largely in their initial income per capita levels, quite an opposite result can be found and convergence does not necessarily exist. According to Mankiw these kinds of results can be found in the large country samples compiled by Summers and Heston (1991).

Some studies have found that for example in the United States the poorer states are growing faster than the initially richer states, and thus convergence is taking place. However, this is not always the case. When the poor countries of the world are studied as a group and then compared their growth rates with the group of rich countries, there is no evidence of convergence.

Barro and Sala-i-Martin (2004) studied convergence within countries or groups of countries. They studied convergence across the states in the USA, Japanese prefectures and European regions. In a time period of 1880–2000 they found that per capita income had converged across the states of the USA. Absolute β-convergence was found in the data regarding the U.S. states in seven of ten sub periods. The cross-sectional standard deviation for the log of per capita income, i.e. σ-convergence, has been declining and rising alternately. The main trend has been that the dispersion of per capita income has been declining between 1880 and 2000, thus meaning that σ-convergence has also taken place in the U.S. states. Absolute β-convergence was found also when the per capita income levels of 47 Japanese prefectures between years 1930 and 1990 were studied. The speed of convergence was faster in a sub period 1930 to 1955 than it has been after year 1955. Also the pattern for σ-convergence has been quite similar in Japan as it was in the U.S. states. The dispersion of per capita income fell steadily from the end of the World War II until the beginning of the 1980s, when the dispersion started to rise modestly. The last group of regions Barro and Sala-i-Martin analysed were 90 regions in eight European countries between years 1950 to 1990. The countries studied are all Western European countries, namely Germany, France, Italy, Spain, Great Britain, the Netherlands and Denmark. As in the other studies, absolute β-convergence was found also in the European regions. Also the dispersion of per capita income has been declining in the five biggest of these European countries.

Of the previous studies, the most relevant regarding this thesis are made by Kaitila (2003 & 2004) who has studied the convergence in the European Union. When the per capita incomes of the old European Union member countries are compared to the average EU15 GDP per capita there has been found convergence within this group of countries, with the exception of Luxembourg and Ireland. In the former GDP per capita has been growing the fastest in Europe since early 1980s, and the latter has also experienced strong growth leading to divergence. However, the convergence in the European level has meant that some countries, like Sweden and Denmark have experienced decline in their relative GDP levels. The best performers of the old EU members have clearly been the so called cohesion countries, Spain, Greece, Ireland and Portugal, which all have grown at such a rate that has led them to converge with the average EU15 per capita GDP. (Kaitila 2003.)

Another study by Kaitila (2004) examines conditional convergence in EU15 area in 1960–2002. According to this study, conditional convergence has taken place in EU15 countries and deeper integration within the EU has most probably facilitated this. Kaitila included dummy variables, like the memberships of the European Union, the customs union, EU's internal market, Maastricht Treaty and EMU in order to capture the effects of integration in convergence. These dummies all had a positive sign, meaning that deeper integration should increase convergence. Even though these dummies are not unproblematic in their use, it was found that when these variables were included in the study, the results indicated that convergence has really taken place in the EU15 area. Membership in the customs union proved to be the most important factor contributing positively to growth. The impact of internal market, on the other hand proved to have an ambiguous impact on growth, and thus does not prove a very strong evidence of the benefits of the European integration for conditional convergence. Also Henrekson, Torstensson and Torstensson (1997) have studied the relationship of economic integration and growth. They evaluated empirically whether the European integration in the form of EC or EFTA had any impact on the long-run growth. They found that EC and EFTA memberships affect growth mainly through technology transfer. Since technology transfer is one main mechanism through which income level convergence can be achieved, it seems accurate to conclude that integration has proven to be important driver of income convergence in Europe. Okko (2003) emphasises also the roles of human capital and institutions in the Europe wide catch-up process.

It can be concluded that convergence takes place most likely when relatively similar countries are studied, or when convergence is tested across regions within a country. According to empirical studies, there is only little evidence of cross-country convergence in large country samples when there are larger differences in initial conditions. Even if there can be regional differences within a country, these are probably much smaller than between countries. It is also more probable that the access to similar technology is easier within a country or an internal market, as is the case in the European Union than between countries. This conclusion is especially apparent in the results by Barro and Sala-i-Martin (2004), when they found that in all the samples they had within a country or a group of relatively similar countries both β-convergence and σ-convergence have been found. This conclusion explains why the neoclassical assumption of poor countries growing faster than the richer fails to be correct, and thus why there has not happened a large scale world wide convergence.

Previously in this chapter, there were presented three different patterns of convergence behaviour of a pair of one rich and one poor country. The three alternatives presented in Figure 3 are, however, a bit misleading. In the real world, when actual data sets are studies, it is most often found that even if the poor countries are growing faster than the initially richer ones, the gap between them is not necessarily narrowing very fast. As the poor countries grow faster, they catch up the present per capita level of the rich. However, at the same time, the rich have been growing at their own slower pace, thus gaining again a lead and leaving the poor behind them. This situation is depicted in Figure 3.

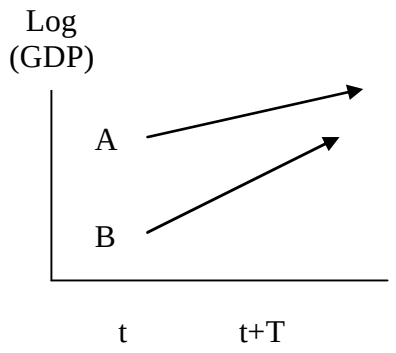


Figure 6 Convergence behaviour in the real world

This pattern of convergence is the most descriptive of the real world. The rich world, represented by A, starts at a higher level of income and the poor, represented by B, starts at a lower level of income at time t. Even if B is growing faster than A, the income gap is so high that catch-up will not happen very fast. At time t+T, A is still at a higher level of income than B. This applies also to the enlarged European Union, as will be discussed in the next chapter. The new member countries are growing faster than the old members, but the income gap between them is not necessarily decreasing very fast. There could be even σ-divergence, since even if the poor is growing faster than the rich, the standard deviation of per capita income might be increasing during the first years. In this case there is absolute β-convergence, which would lead to an assumption of σ-convergence also taking place. However, if A is significantly richer than B in the initial situation, then there will be σ-divergence during the first years before B reaches the income level of A, when the standard deviation of their income per capital levels decreases leading to σ-convergence.

Another important point about the convergence is that one potential source for increasing income level convergence is deeper economic integration, and income levels of countries taking part in the integration process should be converging over time. However, as there is an income gap between countries that are taking part in the economic integration and countries that are still outside the process, there is also an income gap between the countries within the same integration regime. This is especially important in the European Union, where one of the most important results of the deeper and wider integration should be the income level convergence within its member states.

## 5 ECONOMIC DEVELOPMENT IN THE NEW EU MEMBERS AND THEIR CATCH-UP PROCESS

This chapter focuses on the economic development in the Central and Eastern European countries (CEECs). In 2004, a group of eight former socialist economies became EU member states. Many of these new members are still far behind the old members in many respects. One of the most important issues, when considering the CEEs' economic development, is the large income per capita gap between them and the EU15 countries. The purpose of this chapter is to discuss the recent development in the Central and Eastern European countries, especially in relation to their Western

neighbours. The main focus is to find out how fast the Central and Eastern European countries will be able to catch up with the old European Union member states. In the past years many of these new entrants have been able to grow faster than the old EU members, so at least in theory convergence in per capita income levels should be taking place. However, growth is not necessarily evenly distributed within these countries so some regions are growing faster than some other regions in the same country. This perspective of regional dispersion of income is also very important when the economic performance of these countries is considered.

In this chapter, the European integration process is discussed from the point of view of the new entrants. Especially the importance of trade relations for them is considered. Then, the growth performance of the Central and Eastern European countries is studied, and finally, the concept of convergence in per capita income levels is brought into discussion, as well as the uneven regional dispersion of income. Also some estimates of their future development are presented.

## *5.1 Integration process in the Central and Eastern European economies*

On May 1st 2004, the European Union accepted eight new Central and Eastern European countries to join the union. These new countries were the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovenia and Slovakia. These eight countries are still more or less in the process of transition towards becoming functioning market economies. Even though the EU's population grew by over one hundred million people by the new entrants, in economic terms the increase was much more modest since the living standards in these countries are significantly lower than in Western European countries (EEAG report on the European Economy 2007, 73). In this study, the eight new Central and Eastern European countries are referred to as CEE8, and the Western European EU countries are referred to as EU15. In this section, first the integration process of these countries is discussed from the three aspects that were presented in chapter 3, namely trade relations of CEE8 with EU15, their geographical location and institutional development.

### *5.1.1 Economic integration into European Union*

The process of integration with the Western Europe has been on the agenda of the CEEs more or less since the beginning of the 1990s. Joining a trade bloc was not new

to these countries, since most of them were members in Comecon (Council for Mutual Economic Assistance), which was an economic organization for socialist countries. Their integration with the Western Europe started from scratch, but within a few years they signed bilateral agreements with the EU that prepared them for the forthcoming accession (Widgrén 2002, 174). In order to be qualified even to take part in the accession negotiations, these countries had to reform their market structures and meet the Copenhagen criteria of institutional stability guaranteeing democracy, existence of a functioning market economy and the ability to take the obligations of membership (European Commission website).

There have been various reasons that have been facilitating European integration process. One very important reason for deeper integration was the significance of trade with the existing European Union countries. There are different forms of integration in terms of trade, as already noted in chapter 3. The most important ones of these are free trade areas and customs unions. Since the 1960s there has been a two-level integration system in the European Union, based on this division. These two levels of economic integration are 1) European Free Trade Agreement (EFTA), which is a free trade area and a relatively loose system aiming at integration mainly through increased trade, and being important mainly for countries on the outer circle of the union, and 2) European Economic Community (EEC), which is a customs union, aiming at deeper integration than EFTA. Many of the existing EU members have been EFTA members before joining the Union. (Widgrén 2006, 73.) The economic integration process in the European Union has become even deeper than just forming a customs union. Common market or a single market is also one of the forms of economic integration, and this is the direction where the European Union is today heading at. Today, the single market is the core of the European Union. The aim of the internal market is to remove barriers from people, goods, services and money to move freely across Europe (European Union website). Thus the European integration process has aimed at deepening and widening the economic integration between its member states. The roles of international trade and foreign investments have been crucial in this process.

Before the accession of the Central and Eastern European countries it was estimated that the Eastern enlargement would bring benefits both for the new members as well as for the existing member states. For example Widgrén (2002, 172) estimated the main economic benefits for the Central and Eastern European countries before they were

accepted as members to be in the form and direction of foreign trade, capital movements, the amount of foreign direct investments in the internal market and eventually in the Monetary and Economic Union (EMU). The aspect of increased trade of the new members with the EU is considered in more detail.

In Figure 4, the share of EU15 trade of the CEE8 countries' total trade in presented in 1995 and 2005. In the left panel, there is EU15's share of total imports and in the right panel, there is EU15's share of total exports in the CEE8 countries.

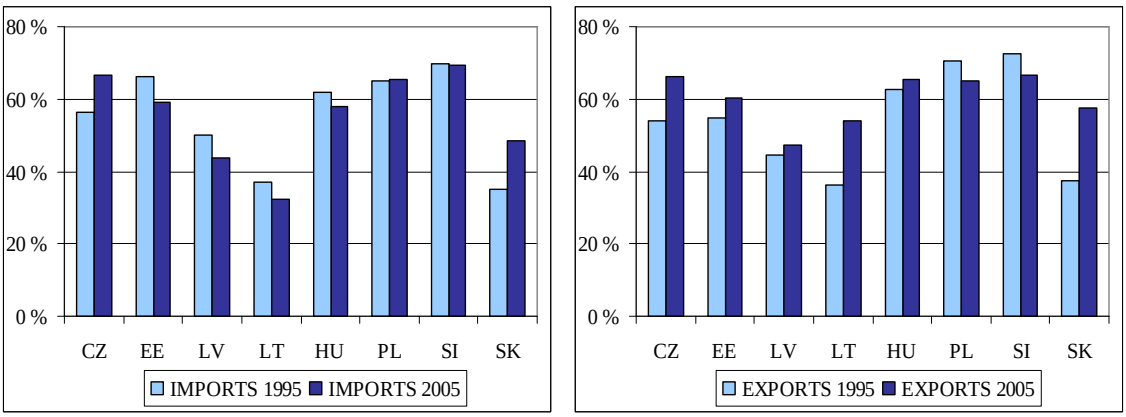


Figure 4 EU15 share of CEE8's total trade in 1995 and 2005 (Eurostat)

The figure above shows that the EU15 area has been the most significant area both in exports and imports for the CEE8s. In 2005, Latvia, Lithuania and Slovakia were the only countries with less than 50% of imports originating from the EU15 area, and Latvia being the only of the eight countries whose share of exports going to the EU15 area was less than 50% of their total exports. In other countries the share of the EU15 trade is even more than 60% of their total trade. The figure above also shows that as the EU15's role in imports has stayed pretty much the same in 2005 compared to 1995, or even declined in some cases, the importance of the EU15 in exports has increased in all the other CEEs but Poland and Slovenia. Even though the relative share of the EU15 trade has decreased in some of these countries, the value of trade has multiplied in all the eight CEE countries.

When the trade statistics are studied, it can be seen that the overall trend has been that the total value of trade, both exports and imports, has increased in its value significantly in a time period 1995 to 2005. Especially the total value of imports has increased, much due to booming domestic demand in the CEE8s, which cannot be met

solely by domestic production. Trade statistics for the CEE8 countries are presented in appendix 1.

When the trade statistics for each individual CEE8 country are studied, the development trends are quite similar as the overall development of trade relations. The role of the EU15 area as an important trade partner has been increasing especially in the Czech Republic, where the amount of exports and imports has been increasing steadily since 1995. At the same time, the share of the Eastern European trade has not grown significantly. The development of trade relations has been very similar in Hungary, Poland and Slovenia as well, where the EU15 area is the most important trade partner measured in the value of exports and imports.

The significance of the EU15 area, however, has been a bit more modest in the remaining four CEEs. Especially in Latvia, Lithuania and Slovakia the Eastern European countries continue to play almost as important role in their trade as the EU15 area. The share of EU15 trade is much lower than in the other three countries and the significance of the Central and Eastern European countries has maintained on a fairly high level.

The second important component of the economic integration, namely foreign direct investments, has also been important for the CEE8 countries. Throughout the 1990s, when the CEEs were already involved in the accession negotiations, the amount of FDI in these countries increased significantly. According to Widgrén (2002, 183–184), especially Hungary was a major receiver of FDI throughout the decade. Also Poland and the Czech Republic received relatively large FDI inflows. The ratio of FDI inflow to the GDP level was high in the Baltic States, 10% at the highest. For comparison, the FDI to GDP ratio was less than 2% in Finland in the 1990s. The FDI inflows into Slovenia and Slovakia, on the other hand, were less significant.

When the FDI inflows into the new members in the 2000s are considered, it is estimated that the value of foreign direct investments into CEEs increased by 36% after the accession. The overall amount invested in the CEE8 in a period of three years after accession was 25 million euros more than in a three-year-period before accession. Second, the majority of the FDI projects in the new member countries originated in the EU15. (Gligorov et al. 2007, 2.)

Table 3 Cumulated FDI inflows in EUR billion (Gligorov et al. 2007, 3)

| | 2001-2003 | 2004-2006 |
|---|---|---|
| EU15 | 1331,7 | 1285,8 |
| CEE8 | 55,8 | 80,4 |
| Czech Republic | 17,2 | 18,1 |
| Estonia | 1,7 | 4,4 |
| Latvia | 0,7 | 2,4 |
| Lithuania | 1,4 | 2,9 |
| Hungary | 9,5 | 14,6 |
| Poland | 14,8 | 29,1 |
| Slovenia | 2,4 | 1,4 |
| Slovakia | 1,7 | 7,5 |

(Gligorov et al. 2007, 3)

FDI inflows grew strongly in all the CEE8 countries. Three major recipients of the FDI were the Czech Republic, Hungary and Poland. In Poland, the stock of FDI almost doubled in three years after accession, compared to a period of three years before accession. The role of FDI is an important factor in the process of integration, since it can be regarded as an indicator of the country's business climate. In order to receive foreign direct investments, the country has to be safe in the eyes of the investors, since no one would make major investments in countries they would regard as unsafe. According to a World Bank report (2007, 8–9), the rapid investment growth in the CEEs has been fueled by optimistic future expectations about domestic and external demand, high profitability and capacity utilisation and supportive financing conditions. Thriving investment activity has also spurred FDI inflows, which continues playing a crucial role in creating competitive pressure and having important second-round effects on investment activity by promoting the development of domestic supplier networks.

FDI inflows are also important from the capital accumulation point of view. According to the growth theories presented in chapter 2, capital accumulation is one of the main drivers of growth. According to Alho, Kaitila and Widgrén (2005, 3) there are two channels for capital accumulation in the new member states, namely national savings and foreign direct investments. The role of FDI has proven to be of crucial importance in the CEEs, since due to strong growth of the domestic demand, which has been met by increasing imports, many of the countries suffer from widening current account deficits. FDI inflows have helped them to finance these deficits. FDI inflows also contribute positively to growth by boosting total factor productivity in the new member

countries. Thus there has been a two-fold welfare gain of receiving FDI inflows for the recipient countries.

All in all, when the flows of international trade and investments are studied, it is quite clear that the EU area played a relatively significant role as a major trade partner and as a source of FDI for these countries already before their accession, and has continued as the most important also after accession. This finding supports Baldwin's (1995) theory about motives to take part in deeper integration. The opportunities for trade creation are much greater than would be the benefits of staying out of the EU. As the EU15 has been the most significant bilateral trade partner for the CEEs, the loss of staying out of the union would most probably have been more costly than joining the union. Now that the CEEs are in the EU, they are part of the internal market, which facilitates trade between member states by allowing free movements of e.g. capital, goods and services.

### *5.1.2 Geographical factors*

As it was noted earlier, the integration process in mainly driven by geographical factors. Often there is a strong correlation between geographical proximity and strong economic ties (Cornett 2003, 5). This applies to the new EU members, which are geographically close to the old EU members. Also the importance of trade is usually driven by the geographical proximity. As already stated, the role of bilateral trade with the EU15 area has been very important for the CEEs. The geographical location is an important factor when assessing the past development and predicting the future prospects for these countries. It is a fact that those countries of the Central and Eastern Europe located either close to the old members or otherwise close to some economically important growth centres are at the moment doing the best. The worst performance is recorded in the countries that are somehow in a disadvantageous location, usually closest to the former Soviet sphere.

The geography matters also when the regional development is discussed, as will be showed later in this chapter. As a generalisation it can be said that the new entrants have benefited from the European integration, but the benefits are not necessarily very equally distributed. The regional income differences are high, and it is most probable that in the future these regional differences remain high, or continue increasing.

### *5.1.3 Institutional development*

The issue of building sound and functioning institutions is especially important in the Central and Eastern European countries, since in many of these new member states, the reform is still in progress. The European Bank for Reconstruction and Development (EBRD) reports annually on economic development and reform processes in transition countries. The reform development is measured by a set of indicators, which represent four elements of a market economy: markets and trade, enterprises, financial institutions and infrastructure. The reform of markets and trade is measured by the liberalisation of prices, the liberalisation of trade and access to foreign exchange, and the effectiveness of competition policy in facilitating market entry and combating the abuses of market dominance by large conglomerates and monopolies. (EBRD 2005, 3.)

According to EBRD (2006, 6–9), the initial-phase transition, i.e. market liberalisation is completed in all the eight Central and Eastern European countries. The second-phase transition – building market support institutions, large-scale privatisation, financial sector development and infrastructure – is still far from complete. These second-phase reforms are usually difficult to design and the implementation is a long process. In general, CEE8 is the furthest on its transition path, at least when compared to development in the South and Eastern European countries or in Commonwealth of Independent States. Partly this fast development has been spurred by the strong popular support for fast economic and political change that would hasten integration with the European institutions. Also the need to harmonise legislation with the EU prior to accession speeded up the pace of economic reforms during the first decade of transition. Now the speed of transition has somewhat abated, partly due to problems in implementing reforms and partly due to declining political support for painful reforms. (EBRD 2006, 6–9.)

The harmonising of institutional structures is important especially in the European Union. In the integration process, it is crucial to solve how to avoid structural shortcomings and social and political conflicts without huge transfer payments (Cornett 2003, 5). Institutional stability helps in facilitating also trade relations between countries by reducing the risk of political instabilities. As the new members develop their market

structures, the Western European countries are more likely to trade more and allocate more capital in the form of investments in these countries.

## *5.2 Growth and convergence in Central and Eastern Europe*

Year 2006 was good for the global economy in the sense that the world GDP grew at a rate of 5,1 %. The growth was almost as fast as in 2004, which was the year of the highest growth since 1973. High growth was due to both structural and business cycle reasons, and especially the integration of fast growing emerging markets like India, China, Eastern Europe and Russia into the world trading system has had positive impacts on the world economy. (EEAG Report on the European Economy 2007, 15.)

In year 2006 the European Union as a whole recorded the highest GDP growth since 2000, with a rate of 2,9 %. This growth was driven largely by domestic demand. In 2006, private consumption increased almost everywhere in the EU and it was further stimulated by improved labour market conditions and higher wages. (EEAG Report on the European Economy 2007, 15.) The overall positive development in the global economy has also affected positively the CEEs, whose growth performance is studied in more detail in the following.

### *5.2.1 Growth in the CEE8*

One consequence that was anticipated before the European Union enlargement in 2004 was that the new members would benefit from faster economic growth, mainly through exploitation of larger markets and inflow of foreign capital and technologies. It has been estimated that the annual growth gains from the membership for these new members could be approximately around one percentage point for the first ten years. (EEAG 2007, 73.)

In the beginning of the 1990s, after the fall of the communism, all the CEE8 countries started their transition towards becoming market economies and to restructure their economies. This transition period had a strong impact on their economic performance at the time. All the eight Eastern and Central European countries went through a similar structural shock during the transition. According to Wagner and Hlouskova (2002, 5–8) the transitional phase can be split into an early phase of contraction and a later phase of stabilisation of markets and eventual growth. Growth during the transition period

depended heavily on the transition process itself, which included especially the initial conditions in the country and the chosen reform policy.

Wagner and Hlouskova (2002) studied the economic performance in the Central and Eastern European countries from the start of the transition in 1989 to 1998. They found a positive correlation between initial GDP in 1989 and the average growth rate in these countries. The eight countries had relatively comparable level of income in 1989 but their growth experiences have varied largely 1989 to 1998. Wagner and Hlouskova divided this ten year sample period into two sub-periods, and there can be seen an insignificant negative correlation between initial income and growth in the first sub-period, 1989 to 1993. In the second sub-period, 1994 to 1998, there can be seen a positive correlation between initial income and growth rate. The fact that these countries have performed differently confirms that the initial conditions are not the main determinant of economic growth, not even at the beginning of transition. The start of transition from centrally planned to market economy can have very differential impact on the individual countries. (Wagner & Hlouskova 2002, 9.) According to the neoclassical growth theory, there should be a positive correlation between investment and growth and a negative correlation between government consumption and growth. When the sample countries are studied, there can be seen a negative correlation between investment and growth during 1989 to 1993, and a positive correlation during the second period 1994 to 1998. According to Wagner and Hlouskova (2002, 9) the negative correlation in the first sub-period is caused by the huge institutional change and the disorganisation of the existing economic structure. When the correlation between government consumption and growth is studied, a positive correlation can be seen in both sub-periods. This observation differs from experience on developed industrial nations, as e.g. the group of EU15 countries. (Wagner & Hlouskova 2002, 9–10.) Today, all of the CEE8 countries have gone through the transition period more or less, and their economic performance has been mainly positive in recent years.

At the present moment, all the CEE8 countries are growing relatively well, even though some of the countries have not been able to continue on a path of strong growth. Table 4 presents GDP growth figures in the eight CEE countries, and for comparison growth rates in EU15 between the time period 2000 – 2008.

Table 4 GDP growth in the EU15 and CEE8 – percentage change on previous year.

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007[f] | 2008[f] |
|---|---|---|---|---|---|---|---|---|---|
| EU15 | 3,8 | 1,9 | 1,1 | 1,2 | 2,3 | 1,6 | 2,8 | 2,7 | 2,5 |
| Czech Republic | 3,6 | 2,5 | 1,9 | 3,6 | 4,2 | 6,1 | 6,1 | 4,9 | 4,9 |
| Estonia | 10,8 | 7,7 | 8,0 | 7,1 | 8,1 | 10,5 | 11,4 | 8,7 | 8,2 |
| Latvia | 6,9 | 8,0 | 6,5 | 7,2 | 8,7 | 10,6 | 11,9 | 9,6 | 7,9 |
| Lithuania | 4,1 | 6,6 | 6,9 | 10,3 | 7,3 | 7,6 | 7,5 | 7,3 | 6,3 |
| Hungary | 5,2 | 4,1 | 4,4 | 4,2 | 4,8 | 4,1 | 3,9 | 2,4 | 2,6 |
| Poland | 4,3 | 1,2 | 1,4 | 3,9 | 5,3 | 3,6 | 6,1 | 6,1 | 5,5 |
| Slovenia | 4,1 | 2,7 | 3,5 | 2,7 | 4,4 | 4,0 | 5,2 | 4,3 | 4,0 |
| Slovakia | 0,7 | 3,2 | 4,1 | 4,2 | 5,4 | 6,0 | 8,3 | 8,5 | 6,5 |

(Eurostat)

It can be seen that after 2004, all of these countries have experienced accelerated growth, and they have been able to maintain their robust growth performance. Especially the Baltic countries have been growing very fast, except that in Lithuania the growth has been more modest than in Estonia and Latvia. However, the forecasted growth for the ongoing year 2007 seems to be a bit more modest, which is not necessarily a bad thing for these economies since there might be some risk of overheating, especially in the Baltic countries after rapid growth. On the other hand, Hungary has had quite modest growth figures throughout the 2000s, and for 2007 its growth is estimated to slow down even below the EU15 average growth.

Strong growth in the CEE8 has been mainly driven by robust domestic demand and export growth, as well as the strong global growth has affected positively their economic performance (EBRD 2006, 20). Growth in the service sector has been the most important sector contributing to the overall GDP growth in these countries. Also industry has kept its role in the GDP growth. (World Bank 2007, 7.)

In the CEE8s, the growth began much earlier than they became members in the European Union. The membership in itself gave a boost to reform policies, and this can be seen in the accession countries since the mid-1990s. To be able to take part in the membership negotiations, the accession countries had to start adjusting their

legislation and implementing market-oriented liberalisation and privatisation reforms. (Kaitila 2002, 2.) However, some of the accession countries have shown signs of suffering from reform fatigue, and the speed at which they were implementing economic reforms and institutional restructuring have been slowing down. Partly this can be explained by the fact that many of the reforms required by the EU membership are quite expensive and hard to carry out. Now that the CEEs have been accepted to the EU, the most imminent need for reforms has vanished.

### *5.2.2 Convergence of the CEE8 towards EU15*

One of the most important questions when evaluating the economic performance of the new member countries is that are the CEEs catching up the EU15 countries in per capita income and how fast this will happen. The income gap between the EU15 countries and the CEE8 is still large. Per capita GDP figures in the Central and Eastern European countries range from 50 per cent to 80 per cent compared to per capita GDP in the European Union as a whole. All other CEE8 countries are below the poorest Euro area country, except for Slovenia where GDP per capita is over 70 % of the average Euro area per capita income. The income gap between these groups of economies has been shrinking, but the convergence has been modest. (Schadler et al. 2005, 40.) As Table 4 shows, all the CEE8s have grown at a rate much faster than the EU15 average growth rate has been. This would indicate that at least absolute convergence should take place within the CEE8 in relation to old EU members.

In absolute terms, the CEE8 countries are at present at about the same level of GDP per capita as the EU15 countries were in the mid-1960s, with the exception of Slovenia which is doing slightly better (Kaitila 2004, 1). However, there have been positive growth experiences in the European Union so it is possible that the new entrants achieve convergence relative to old members. The so called cohesion countries Ireland, Greece, Portugal and Spain have all converged but at different speed and partly at different times. The reform policies were one important factor driving convergence in the cohesion countries since they protected the countries from outside competition in many ways. (Kaitila 2003, 2.) The positive experience of the four cohesion countries would indicate that income level convergence would be possible also for the CEEs. Obviously the starting point is today a bit different for the CEEs than it was when the cohesion countries joined the Union in the 1970s and the 1980s.

However, the positive income development in the cohesion countries would be a positive indicator that the cohesion and convergence policies, which are EU's most important tools in driving cohesion between its member states, have been functioning.

Figure 8 presents the actual GDP per capita figures for the CEE8 countries as compared to EU15 which corresponds to 100%. In order to make these figures comparable between different countries, they are presented in the form of purchasing power standard, PPS. It means that the GDP figures are converted by using currency conversion rates, purchasing power parities (PPP) in order to equate the currencies. The PPS is an artificial common currency and it enables the comparison of the purchasing power of the different national currencies. (Regions: Statistical Yearbook 2006, 27.) It has also to be noted that these figures should be used in comparisons between countries, and not so much in explaining the development of GDP per capita levels over time.

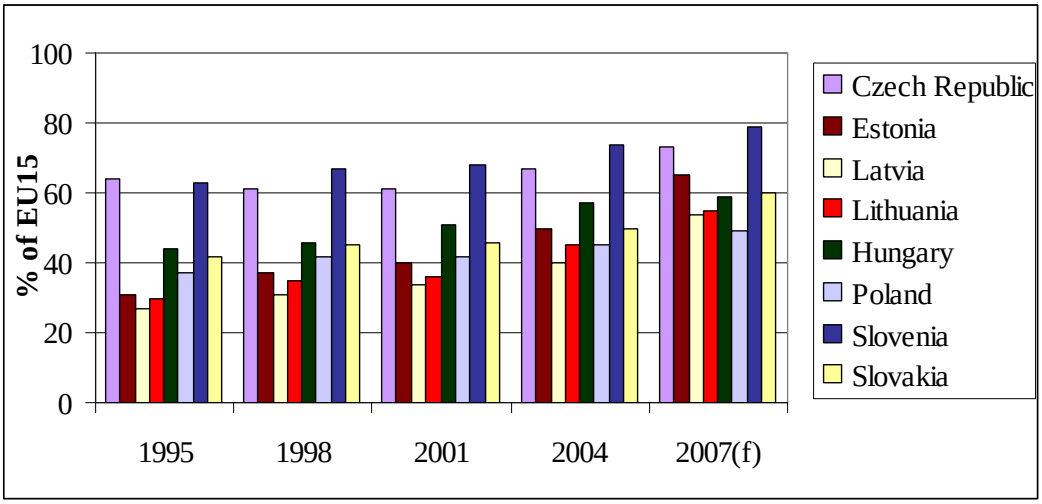


Figure 5 GDP per capita in PPS in CEE8 compared to EU15=100% (Eurostat)

It can be seen from this figure that there really has happened positive development in the CEE8s during the last decade, when the relative income gap between the CEE8 countries and the EU15 average is considered. The income gap between the EU15 and the CEEs was relatively high in 1995, with the Czech Republic and Slovenia closest to the EU15 level with over 60 per cent of the EU15 income per capita levels. The variation was relatively high in the CEE8, Latvia being the poorest with an income per capita level less than 30 per cent of the EU average. The estimated levels for 2007

show that some sort of convergence has taken place when the GDP levels of each country are proportioned to EU15 level. The gap between the highest and the lowest bars has shrunk, mainly due to CEE8 catching up the EU15 level of 100%. There are at least two things to be noted from this figure. First, the Czech Republic has not been performing very well. Even if in 1995 it had the highest per capita income of the CEE8, its development since has been quite modest and it has not been able to catch the EU15 level any faster than the other countries. In fact, the Czech Republic experienced some years of stagnation in the second half of the 1990s and the economy started to recover in 2003 when it again reached its 1995 level. Second, the initially poorest Baltic countries, on the other hand, have grown at a faster speed and today their relative income per capita gap between the EU15 is much smaller than in 1995. Latvia's GDP per capita is estimated to reach 54 % of the EU15 level in 2007. Also Estonia has been catching up the EU15 in quite a good pace; in 1995 Estonia's GDP per capita amounted only to 31% of the EU15 and the forecast for 2007 is 65 %. The best performer of the CEE8 has been Slovenia, where GDP per capita in 1995 was already 63% and the forecast is that Slovenia will continue its good performance reaching a 79% level this year.

The annual development for 1995 to 2008 is presented in more detail in Figure 6 and Figure 7 below. These two figures present the real convergence by GDP per capita figures in PPS for the CEE8 and for comparison for the EU15.

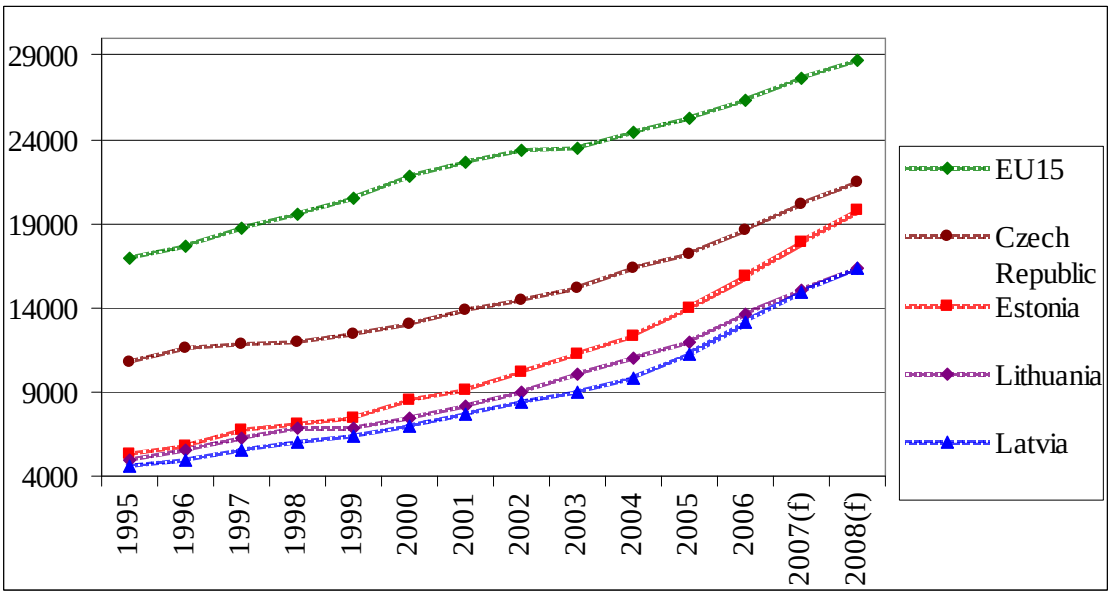

Figure 6 GDP per capita in PPS 1995–2008 in EU15, Czech Republic, Estonia, Latvia and Lithuania (Eurostat)

Figure 6 shows the positive development in the three Baltic States. The slope of the curve for the Baltic States is much steeper in an upward direction than the slope for the EU15 average. The development has been positive especially after their accession in 2004. One of the best performers of all the CEE8 countries has been Estonia, which has showed strong growth, and the gap between Estonia and EU15 has been shrinking since 1995. Also Latvia and Lithuania have been growing faster relative to EU15 but at a lower space than Estonia. However, in absolute terms the income gap has not been shrinking between these two countries and the EU15 average. In fact, in absolute terms the income gap in Latvia and Lithuania is still at about the same level as it was in 1995.

All the three Baltic countries started in 1995 at roughly the same level of per capita income, but the estimate for 2008 is that the gap between Estonia and the other two Baltic countries will widen. It is estimated that Estonia will be the first one of the CEEs to catch up 90% of the EU15 income in 2033 (Kaitila, Alho & Nikula 2007, 4).

The less favourable development in the Czech Republic can also be seen in this figure. When the GDP level of the Czech Republic is compared to the EU15 average level, the gap between them will be pretty much the same in 2008 than it was in 1995. In absolute terms, the income gap between the EU15 average and the Czech Republic has not been narrowing, even though the Czech Republic has been growing at a faster annual pace than the EU15 since 1995. This and the fact that it has been among the slowest to grow of the CEE8 would indicate that the Czech Republic is not among the first ones to catch up with its Western neighbours, even though it started as one of the most prosperous CEE countries in the 1990s.

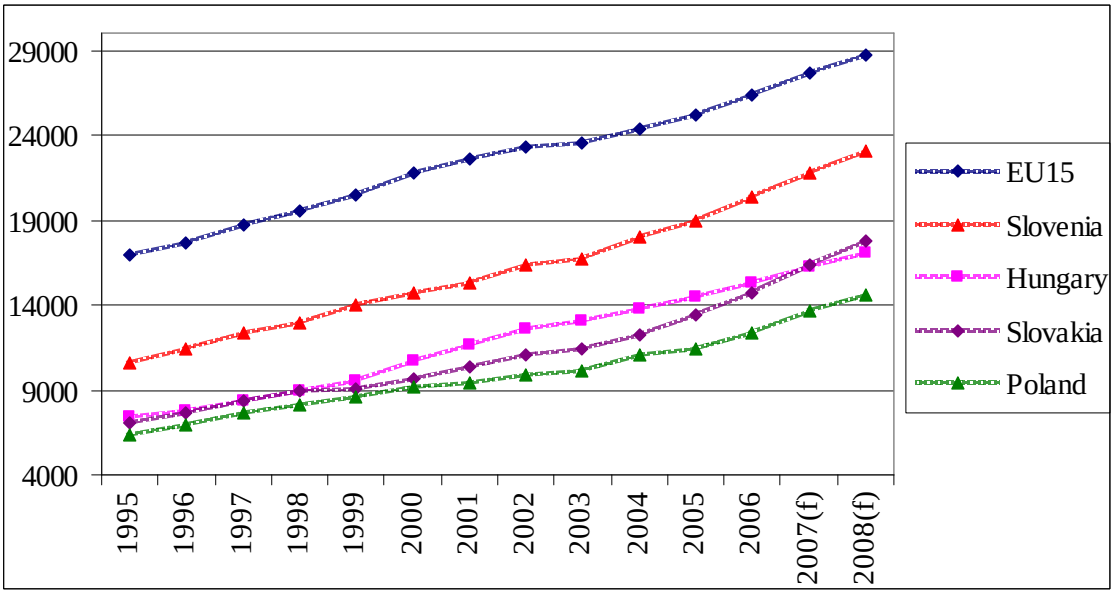


Figure 7 GDP per capita in PPS 1995–2008 in EU15, Slovenia, Hungary, Slovakia and Poland (Eurostat)

Figure 7 shows that Slovenia has been the best performer of the CEE8. It started as the most prosperous in 1995 and the estimated income per capita for 2008 is still the highest of these countries. Slovenia has been able to keep growing at a stable pace, which would also indicate that its economy is on a stable basis, and there would not be a risk of overheating as in the fast growing Baltic States. However, the income gap has been shrinking quite slowly, as Figure 10 depicts. The other three countries that are presented in this figure have been growing at a more modest pace and thus the income gap between Poland, Hungary and Slovakia and the EU15 has not been shrinking very fast. In fact, the gap is estimated to stay at pretty much the same level in 2008 as it was in 1995 for Hungary and Slovakia, and the gap for Poland is even increasing.

Whether or not absolute β-convergence has taken place within the European Union can be studied by applying the definition of absolute convergence presented in chapter 4. Having the data of per capita GDP figures for the EU15 and CEE8 from 1995 to 2006, it can be estimated if there has been absolute convergence within the new and the old members. Time period used here is from 1995 to 2006, since the CEE8 countries have been members in the EU only since 2004. It would not be useful to

estimate convergence for a period of less than three years. Figure 8 below depicts the β-convergence in the CEE8 and in the EU15 countries.

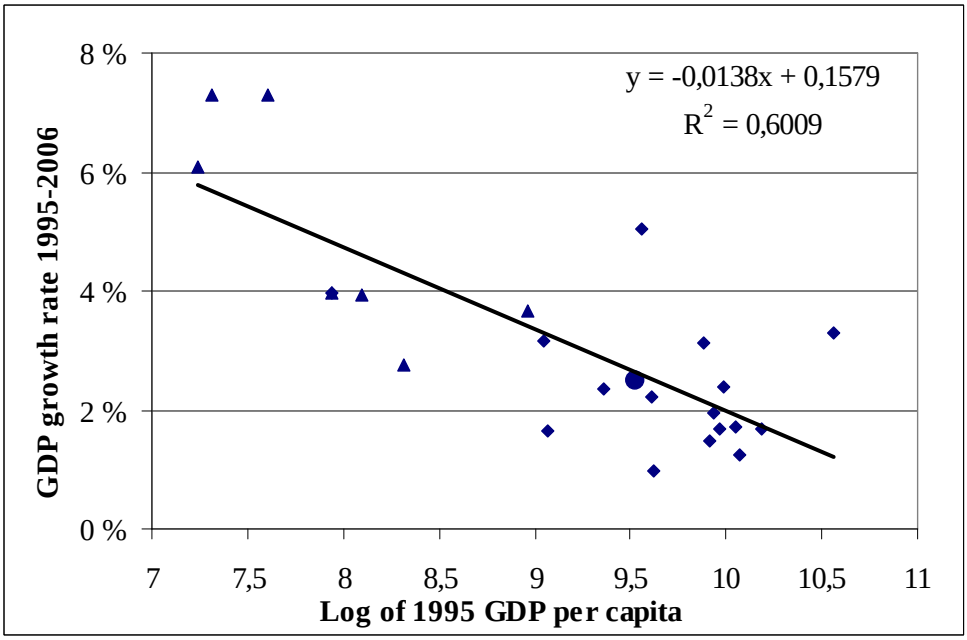


Figure 8 β-convergence in the enlarged EU

The figure above depicts the CEE8 countries by a triangle symbol, and the EU15 countries by a square symbol. The circle refers to EU23. This figure shows that absolute β-convergence has been taking place in the enlarged EU. Countries with initially lower levels of income have been growing faster than countries with initially higher levels of GDP per capita. In this case the linear regression made of the data is

$y_g = 0{,}1579–0{,}0138\ (y_{95})$.

This means that the CEE8 countries have been growing faster than the EU15 countries in 1995 to 2006 leading to absolute β-convergence in the European Union. Kaitila (2004) has made similar conclusions of the CEE8s convergence in 1993–2002. When the speed of convergence in CEE8 towards the average GDP per labour force in EU15 area in 1993–2002 was studied, the results indicated that absolute convergence had taken place. Also conditional convergence was shown to have occurred, and according to Kaitila the integration process has been one of the contributors to income per capita convergence in the European Union. Thus predictions of convergence by the

neoclassical growth theory are at least to some extent valid in the European Union level.

The other form of convergence, namely σ-convergence has been largely absent in the enlarged EU. Even though the CEE8 countries have been growing faster than the EU15 countries on average, the standard deviation of the income per capita levels is not decreasing very fast. So far, the standard deviation has even increased slightly, meaning that despite faster growth in the CEE8, the income per capita gap between the new and the old members is even increasing. However, this is very likely to change in the future, if the new members will be able to continue on a path of strong growth. In any case, this will take most probably several years.

So far, the CEE8 as a whole has been growing faster than the EU15 on average. In the light of their previous growth performance, it is interesting to make predictions about their future growth. There have been made different projections about the future growth rates of the CEEs and the speed of the convergence process. For example, Kaitila et al. (2007) estimate that the EU15's GDP will grow at a rate of 1,9% and the rate in the CEEs is 3,7% correspondingly from 2006 to 2050. If these estimates hold true, the wealthiest of the CEEs in 2050 will be the Baltic States, Hungary and Slovenia, when they will exceed 90% level of the EU15 income. The CEEs will reach EU15's current income level in 2028, when they will be at 68 % of the EU15 average, and the convergence process will continue. Below, there are drawn different prospects for the CEE8 and EU15 convergence process.

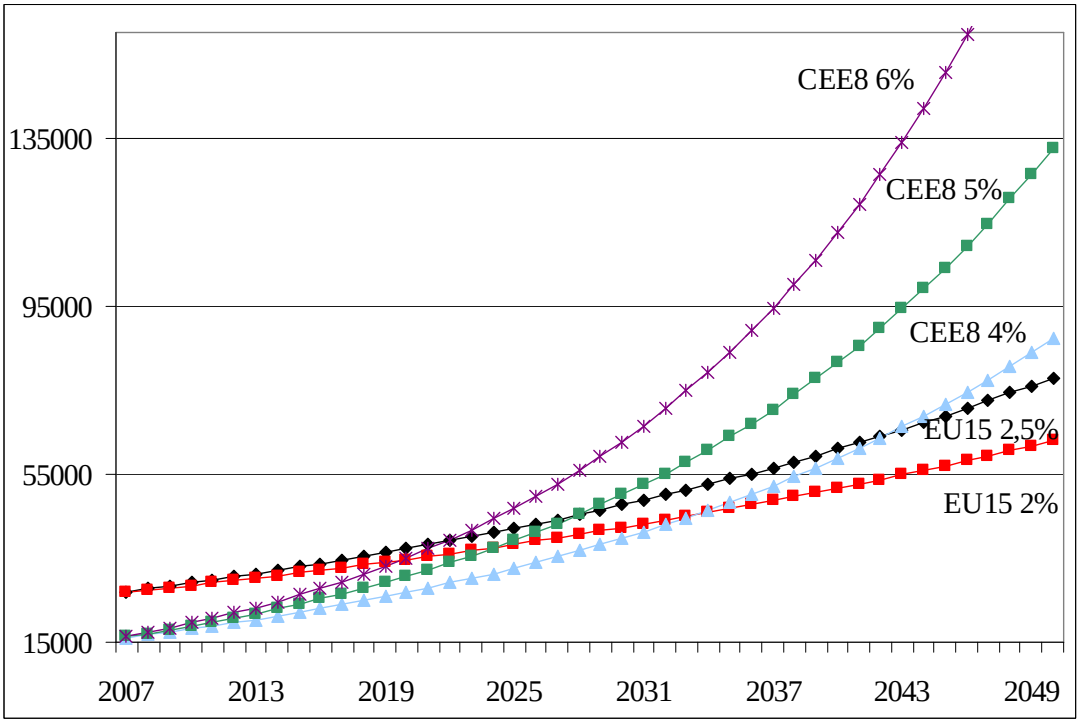


Figure 9 Growth projections for the CEE8 and the EU15 at different growth rates

Figure 9 depicts different future projections for the CEE8 and the EU15. It can be estimated that if the CEE8 would grow by 6% annually starting in 2006, it would reach the EU15 per capita income level by 2022, if the EU15 would grow by 2,5% per annum. If the CEE8 would grow at a rate of 4% and the EU15 by 2% respectively, then the CEE8 would reach the EU15 by 2034. However, these projections are too simplistic, since even if the CEE8 area would be able to keep the strong growth of the last few years, the speed of growth would most probably slow down as the CEE8 would be reaching the EU15 level. This is in accordance with the presumption of the neoclassical growth theory that the speed of convergence is conversely related to the distance of the steady-state growth and the current growth rate.

It can be concluded that the overall development has been very positive and also the future prospects seem good for the CEEs. The CEE8 countries have been approaching the EU15 average level, whereas the growth in the EU15 countries has been more modest. This is true at least in relative terms, whereas in absolute terms the catch-up has not been that fast. Estimates indicate that CEEs are catching up the old EU members, and that absolute β-convergence is taking place in the enlarged European Union. Also the dispersion of per capita incomes should be narrowing over time as a

result of faster growth in the CEEs, meaning that also σ-convergence will be taking place. However, the relatively large income per capita gap between the CEE8 and the EU15 countries still exists. It is difficult to forecast how fast this gap is narrowing, and which countries are the first ones to catch up the EU15 average income. The income per capita levels in many of the Central and Eastern European countries are still only approximately 50 to 80 per cent of the EU15 level.

The income per capita differences do not exist only between the old and the new EU members, but also the differences in the income per capita levels within the Central and Eastern European countries are quite large. For example, GDP per capita in Slovenia is almost twice as high as in some other CEE countries. Even if the new member countries are growing faster than the EU15 countries on average, there is no sign that the dispersion of per capita income within the CEE8 area would be falling any time soon. This somewhat negative outcome of faster overall economic growth is studied in the following.

### *5.2.3 Regional income per capita disparities*

Even though the CEE8 as a whole is converging towards the EU15, there can be seen regional dispersion of income within these countries. There still exist regional disparities in all the EU countries, but relatively the largest differences are in the Central and Eastern European countries. There can be found various reasons for this unequal dispersion of welfare. According to EBRD (2006, 12) the transition from planned to market economies has differed both across countries but also within countries. Transition has had diverse impact on different regions, depending on the starting point and the socio-economic conditions in a particular region. Even if the CEE8 area as a whole is converging with the EU15 income per capita levels, it has to be remembered that it is not clear that all the countries and regions would benefit from this equally (Eurostat 2006, 33). For example, Wagner and Hlouskova (2002, 13) found that even if there has been Europe wide convergence up to the late 1980s, after that the early transition period led to significant increase in income dispersion covering the Europe. This divergence has been approximately constant since 1994.

There are quite large differences in GDP per capita figures both across and within the CEE8 area. The poorest countries are the Baltic countries and Poland, and the richest is Slovenia. According to Eurostat data, in 2004 the average per capita GDP varied

from EUR 4570 in Latvia to EUR 13130 in Slovenia. However, the large income differences do not exist only between countries but also within countries.

There is a general tendency of certain regions becoming richer while other regions in the same country become poorer. This problem does not cover the countries in the Eastern Europe only; it is a common problem for almost all the countries in the world. Usually the region surrounding the capital city of the country tends to become richer, while rural areas become poorer. Capital cities tend to attract more investments, they have better institutional capacity, fewer infrastructural bottlenecks and a larger pool of qualified labour force (EBRD 2006, 13). Many of the so called peripheral regions suffer not only from lower levels of income per capita but also from lower levels of employment, other social problems and poor infrastructure.

Another reason for regional variation in income levels is due to the fact that many industries tend to concentrate in certain regions. Usually regions with good transportation possibilities or abundant supply of raw materials tend to attract industries. The most attractive regions are thus either surrounding the capital cities or somewhere logistically important. This leads to a situation where the well-developed and richer regions are doing well, and the peripheral poorer regions are left behind

When the regional differences in GDP figures in the CEEs are studied, it is quite clear that regions around capital cities are much richer than other regions in terms of GDP per capita. In all the CEE8 countries, the richest region is the region surrounding the capital city with income per capita levels of 50 to 100 per cent higher than the country average. In Poland, the capital region has a per capita income of 180% higher than the rest of the country. These differences are presented in Table 5.

Table 5 The richest and the poorest region and their income per capita relative to country average and the EU average

| | Richest region of country average | Richest region of EU15 average | Poorest region of country average | Poorest region of EU15 average |
|---|---|---|---|---|
| Czech Republic | 208,9 % | 138,8 % | 78,1 % | 51,9 % |
| Estonia | 156,4 % | 77,0 % | 59,8 % | 29,4 % |
| Latvia | 183,3 % | 73,6 % | 46,5 % | 18,7 % |
| Lithuania | 143,5 % | 64,7 % | 65,5 % | 29,6 % |
| Hungary | 205,3 % | 116,0 % | 54,1 % | 30,6 % |
| Poland | 281,7 % | 126,3 % | 58,2 % | 26,1 % |
| Slovenia | 142,8 % | 105,2 % | 69,0 % | 50,8 % |
| Slovakia | 228,0 % | 114,2 % | 60,7 % | 30,4 % |

(Eurostat, author's calculations)

When the development of regional disparities is regarded, the largest increase in the regional differences has taken place in all three Baltic States, especially in Latvia, where the regional dispersion has increased from 35% in 1995 to 53% in 2004. Also the Czech Republic has experienced an increase in its regional income disparities. Other CEEs have been able to maintain roughly the same level of regional disparities. The lowest level of regional disparities was in Slovenia, where the level of regional income disparities was approximately 22%. (Eurostat.)

Also EBRD (2006) found similar results in its study. Table 6 presents regional differences by comparing the capital city and the poorest region to the national average by four different indicators: average household income, employment level, quality of infrastructure and social welfare.

Table 6 Differences within countries

| | Number of regions surveyed | Ratio of capital city to average of other regions | Ratio of lowest region to national average |
|---|---|---|---|
| Czech Republic | 14 | 1,59 | 0,65 |
| Estonia | 16 | 1,20 | 0,70 |
| Latvia | 33 | 2,10 | 0,29 |
| Lithuania | 10 | 1,49 | 0,73 |
| Slovakia | 8 | 1,57 | 0,83 |
| Slovenia | 12 | 1,52 | 0,72 |

(EBRD 2006, 13)

It can be seen that from these six countries, Latvia has the biggest dispersion, as the capital city scores more than 100 per cent higher than the country average, while the poorest region totals only 20 per cent of the country average. Other five countries are performing a bit more evenly; the capital regions score to 50 per cent over the averages and the poorest regions to somewhat 30 per cent below the average. (EBRD 2006, 12–13.)

### *5.3 Future prospects for Central and Eastern European countries*

The Central and Eastern European countries have performed fairly well in general. They have been able to reform their economies from socialist systems to market based economies, the institutional development is on a stable path and also all of them have been growing at a faster rate than the EU15 countries. The general picture of these countries looks quite promising. It is also estimated that the overall gains are much larger for the CEE8 countries in the long run, than for the EU15 of their accession in the EU. The gains from the EU membership come from different levels, there are gains from market integration, i.e. trade liberalisation and increasing foreign direct investments, but also important welfare gains are the EU transfers that largely are directed at the new members. (Alho, Kaitila & Widgrén 2005, 3.)

The future prospects look quite promising for the CEE countries as a whole. However, they still are far behind the average EU GDP per capita levels and it will take at least some decades before they will reach even the EU15 present level of GDP per capita. Also the process of market reform is still not completely finished in all the CEE8s, and

this has been partially caused by the reform fatigue in the CEEs. The good experience of the European cohesion countries, Greece, Spain, Portugal and Ireland, on the other hand, would indicate that the convergence of the income levels would be possible and achievable for the CEEs as well. If anything has been learned from the cohesion countries' experience, the future for the Central and Eastern European countries would also be good in the sense that they would achieve convergence.

According to different future projections, the CEE8 countries will catch up the EU15 income per capita levels. To a large extent this results from the deeper economic integration within the European Union, and also the cohesion policies of the EU are important in the process.

The next step in CEEs integration with the European Union is to join to the Economic and Monetary Union (EMU). One important future aim of the Eastern European EU countries is fulfilling the EMU criteria. Membership in the EMU requires fulfilment of several criteria of macroeconomic stability, e.g. price stability, low fiscal deficits and debt, a low long-term interest rate and stability of the currency exchange rate. Also a two years participation in the Exchange Rate Mechanism II (ERM II) is required before EMU entry (EEAG Report on the European Economy 2007, 74.) Of the CEE8 countries, only Slovenia has adopted the single currency euro by now. Estonia, Latvia, Lithuania and Slovakia are members of the ERM II. However, some of the EMU criteria are not yet met in rest of the CEE8s. Also the instability in some of the economies will postpone the EMU negotiations into the future, even though they are already in the ERM II. At least the criterion concerning price stability seems to be at a risk in some of the CEEs, since as a consequence of fast growth the rate at which the prices have been growing is more that the EMU allows.

## 6 CONCLUSIONS

The process of economic growth is a complex concept to describe. There are multiple factors comprising the growth process, and there cannot be pointed out one single reason why some countries grow faster than the others. There have also been various ways to model the growth and its origins, but most of the models fail to explain growth in a simple way. This is much due to the fact that growth truly is a complex process, and various reasons have led to diverging growth patterns of different countries. It is difficult to explain, why some countries have grown faster than the others and why

some countries are much richer than the others. However, even if there is no simple explanation for this, there can be found different important factors that clearly play a role in the economic performance of different countries.

One of the most important and also the most controversial explanations for growth is the role of international trade and economic integration of the countries. In the enlarged European Union, the trade relations have clearly been an important factor in facilitating the integration process. Countries that have already joined a free trade area are much more likely to take part in the deeper integration as well. For example, the EU15 was a significant trading partner for the Central and Eastern European countries already long before they became members in the European Union. One theory behind this kind of deeper integration is the domino theory of regionalism (Baldwin 1995), presented in chapter 3. Integration with the European Union has strengthened their trade relations even further. Also the role of foreign direct investments has been important in the process of economic integration. It has been even argued that the FDI inflows play an even more important role than foreign trade. However, they are both important and can be seen as complementing each other. All in all, the economic integration in Europe has been an important driver of economic growth and convergence between EU's member countries.

Even if trade is one crucial factor in integration process, there are also other aspects to integration as well. One of the key drivers of the European integration has been the geographic proximity of countries. Originally, the European Union started as a community between six of its initial members, which were also close neighbours. Today, even if the European Union has enlarged to a union of 27 members, all its members are located in a relatively small geographical region. Even if the new member states are many times referred to as Eastern European countries, they are in fact located quite well in the heart of the Europe. Poland and the Czech Republic are bordering neighbours to Germany, and the Baltic States have a strategically good location on the shores of the Baltic Sea. One interesting question regarding the future of the European Union is that how long it will be able to continue on accepting new members without losing its present relatively close form.

Third aspect to integration is the quality of institutions. Good institutions are one very essential part of a functioning market economy. In the new member states, the

economic restructuring started in the turn of the 1990s, and today they all have more or less completed this process. Stable institutions are of special importance in the European Union, since one of the accession criteria states that the applicant countries must have institutional stability and they have to be able to accommodate to the EU's policies. Good institutional quality also helps in creating trade relations and in attracting foreign investments in the new members.

The integration process has certainly facilitated the economic restructuring and development in the eight Central and Eastern European countries covered in this thesis. However, it has to be noted that the CEE8 countries became members of the European Union only in 2004, so that their time as full members has been so far relatively short. Thus the accession in 2004 in itself is not a sufficient explanation to the positive development in the CEE8. The economic development in these countries started long before they became members in the union, since the possibility to join the union one day was a strong incentive for these countries to start the restructuring and stabilisation processes, which ultimately led to growth in these countries. The total impact that the European Union membership will have on these countries will be seen in the coming years, but so far the membership has proved to be beneficial, so the future expectations are also high.

The new members have been growing faster than the old member countries, so absolute β-convergence has been taking place in the enlarged European Union. However, there are still large differences in absolute per capita income levels when the CEE8 countries are compared to Western European countries, as well as there are great disparities also within the CEE8 countries. This means that σ-convergence has been so far absent in the enlarged European Union. The initially poorer new members have to be able to keep their strong growth for several years, before the dispersion on per capita income levels within the EU starts decreasing. However, as there is already evidence of absolute β-convergence, it would indicate that also σ-convergence is possible to achieve.

When the transition process began in the early 1990s, there were countries like Slovenia and the Czech Republic that had higher GDP per capita rates than in the rest of the CEE8s. Some of the countries, like the Baltic States started as much poorer, but have been able to expand their economies at a record speed. However, the record

speed growth rates of the Baltic States are not necessarily on a sustainable basis, and there is a risk of overheating which might eventually lead to a recession in these countries. The biggest problems at the moment are the fast rising wage levels and top inflations rates, as well as the current account deficits caused by strong domestic demand. The greatest challenge for these countries is to achieve and maintain a sustainable rate of growth, which will allow them to grow but still avoid the risk of overheating. Also, as the new members have been able to sustain much faster annual growth than the EU15, it is very likely that their growth will slow down significantly at some point. At the moment, the rapid growth is spurred by domestic demand and good global economic situation. As the CEEs gain prosperity, the domestic prices will become higher leading to higher wages and cooling down the domestic demand.

When the future of the CEE8 countries is forecasted, it seems quite obvious that convergence will take place in Europe. Absolute β-convergence has been taking place, since initially poorer countries of the Central and Eastern Europe have been growing faster than the initially richer Western European countries. Also σ-convergence could be forecasted to take place in the enlarged European Union. It means that as the poor countries catch up the income per capita levels of the rich countries, the dispersion of per capita should start decreasing in the EU. However, the convergence process will most likely be an asymmetrical process, since some of the Central and Eastern European countries will grow faster and manage better the stability of their economies than the others. That is why the income per capita levels will not converge completely, since there will always be countries that are richer than the others. It is also important to pay attention to increasing income disparities within the CEE8 area. In order to be able to maintain the good economic development, it is important that the regional differences are not becoming too wide to threaten the stability of these economies. Also the reform fatigue in these countries might slow down the interest in implementing the final steps of the market reform. All in all, the European integration process has been facilitating the Europe wide convergence, and the new members countries in the Central and Eastern Europe have gained and most probably will gain the biggest benefits from this.

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## APPENDIX 1 CEE8 countries' exports and imports 1995–2005

Table 7 CEE8 trade 1995–2005 (EUR millions)

| **Czech Republic** | | | | | |
|---|---|---|---|---|---|
| Exports | TOTAL | EU15 | CEE7 | Russia | Cand count |
| 1995 | 13101 | 7089 | 3330 | 456 | 222 |
| 1998 | 23544 | 15142 | 4670 | 578 | 461 |
| 1999 | 24917 | 17291 | 4280 | 357 | 407 |
| 2000 | 31501 | 21593 | 5166 | 420 | 636 |
| 2001 | 37208 | 25682 | 6112 | 546 | 741 |
| 2002 | 40707 | 27840 | 6603 | 540 | 977 |
| 2003 | 43053 | 30069 | 7062 | 516 | 986 |
| 2004 | 55460 | 38113 | 9548 | 770 | 1397 |
| 2005 | 62784 | 41452 | 11327 | 1132 | 1677 |
| Imports | TOTAL | EU15 | CEE7 | Russia | Cand count |
| 1995 | 17414 | 9824 | 3136 | 1540 | 99 |
| 1998 | 28114 | 18015 | 3554 | 1553 | 163 |
| 1999 | 26706 | 17152 | 3238 | 1308 | 165 |
| 2000 | 34619 | 21737 | 4213 | 2260 | 220 |
| 2001 | 40528 | 25372 | 4744 | 2228 | 333 |
| 2002 | 42996 | 25897 | 5146 | 1946 | 422 |
| 2003 | 45729 | 26942 | 5518 | 2151 | 523 |
| 2004 | 56248 | 37515 | 7410 | 2184 | 478 |
| 2005 | 61500 | 40877 | 8883 | 3392 | 561 |
| **Estonia** | | | | | |
| Exports | TOTAL | EU15 | CEE7 | Russia | Cand count |
| 1995 | 1407 | 770 | 184 | 248 | 10 |
| 1998 | 2891 | 1595 | 434 | 384 | 18 |
| 1999 | 2260 | 1644 | 292 | 76 | 6 |
| 2000 | 3443 | 2634 | 395 | 82 | 7 |
| 2001 | 3696 | 2567 | 436 | 101 | 8 |
| 2002 | 3638 | 2473 | 492 | 122 | 7 |
| 2003 | 3996 | 2730 | 552 | 156 | 13 |
| 2004 | 4769 | 2980 | 842 | 267 | 36 |
| 2005 | 6164 | 3717 | 1082 | 402 | 58 |
| Imports | TOTAL | EU15 | CEE7 | Russia | Cand count |
| 1995 | 1940 | 1285 | 107 | 314 | 4 |
| 1998 | 4255 | 1940 | 894 | 474 | 16 |
| 1999 | 3224 | 2100 | 255 | 258 | 18 |
| 2000 | 4617 | 2890 | 361 | 391 | 23 |
| 2001 | 4798 | 2711 | 462 | 390 | 31 |
| 2002 | 5079 | 2940 | 541 | 375 | 38 |
| 2003 | 5733 | 3070 | 643 | 491 | 41 |
| 2004 | 6702 | 3912 | 1014 | 637 | 43 |
| 2005 | 8065 | 4771 | 1348 | 753 | 48 |

| **Hungary** | | | | | |
|---|---|---|---|---|---|
| Exports | TOTAL | EU15 | CEE7 | Russia | Cand count |
| 1995 | 9827 | 6174 | 826 | 629 | 474 |
| 1998 | 20460 | 14969 | 1401 | 589 | 847 |
| 1999 | 23487 | 17892 | 1443 | 335 | 736 |
| 2000 | 30525 | 22930 | 1880 | 496 | 1107 |
| 2001 | 33983 | 25226 | 2232 | 528 | 1432 |
| 2002 | 36503 | 27426 | 2430 | 482 | 1619 |
| 2003 | 38096 | 28063 | 2855 | 578 | 1809 |
| 2004 | 44672 | 31575 | 3858 | 738 | 2697 |
| 2005 | 50588 | 33150 | 5479 | 943 | 3775 |
| Imports | TOTAL | EU15 | CEE7 | Russia | Cand count |
| 1995 | 11741 | 7266 | 834 | 1407 | 195 |
| 1998 | 22722 | 14704 | 1424 | 1486 | 315 |
| 1999 | 26286 | 16932 | 1663 | 1539 | 394 |
| 2000 | 34833 | 20359 | 2260 | 2809 | 586 |
| 2001 | 37535 | 21712 | 2564 | 2645 | 724 |
| 2002 | 39927 | 22463 | 2943 | 2419 | 848 |
| 2003 | 42263 | 23262 | 3357 | 2629 | 997 |
| 2004 | 48668 | 28176 | 4344 | 2875 | 1227 |
| 2005 | 53494 | 30987 | 5195 | 3982 | 1648 |
| **Poland** | | | | | |
| Exports | TOTAL | EU15 | CEE7 | Russia | Cand count |
| 1995 | 17399 | 12261 | 1181 | 974 | 179 |
| 1998 | 25147 | 17204 | 2304 | 1425 | 280 |
| 1999 | 25670 | 18092 | 2590 | 668 | 319 |
| 2000 | 34374 | 24018 | 3568 | 943 | 490 |
| 2001 | 40195 | 27824 | 4370 | 1182 | 634 |
| 2002 | 43500 | 29915 | 4888 | 1415 | 801 |
| 2003 | 47526 | 32710 | 5642 | 1342 | 1007 |
| 2004 | 60332 | 40603 | 7027 | 2328 | 1723 |
| 2005 | 71889 | 46731 | 8733 | 3192 | 2284 |
| Imports | TOTAL | EU15 | CEE7 | Russia | Cand count |
| 1995 | 22020 | 14359 | 1395 | 1498 | 139 |
| 1998 | 41533 | 27679 | 2701 | 2116 | 344 |
| 1999 | 43050 | 27959 | 2933 | 2514 | 404 |
| 2000 | 53084 | 32458 | 3967 | 5019 | 438 |
| 2001 | 56035 | 34390 | 4364 | 4932 | 695 |
| 2002 | 58480 | 36069 | 4361 | 4678 | 924 |
| 2003 | 60354 | 36892 | 4777 | 4649 | 1091 |
| 2004 | 72109 | 47311 | 6532 | 5098 | 1209 |
| 2005 | 81697 | 53447 | 7613 | 7096 | 1336 |

| **Slovenia** | | | | | |
|---|---|---|---|---|---|
| Exports | TOTAL | EU15 | CEE7 | Russia | Cand count |
| 1995 | 6408 | 4636 | 319 | 233 | 867 |
| 1998 | 8053 | 5785 | 508 | 210 | 977 |
| 1999 | 8031 | 5851 | 549 | 122 | 755 |
| 2000 | 9495 | 6757 | 700 | 210 | 908 |
| 2001 | 10346 | 7202 | 771 | 315 | 1187 |
| 2002 | 10962 | 7396 | 888 | 320 | 1287 |
| 2003 | 11285 | 7548 | 953 | 348 | 1364 |
| 2004 | 13153 | 8672 | 1156 | 464 | 1695 |
| 2005 | 15471 | 10288 | 1433 | 592 | 1952 |
| Imports | TOTAL | EU15 | CEE7 | Russia | Cand count |
| 1995 | 7337 | 5110 | 486 | 185 | 573 |
| 1998 | 8928 | 6235 | 609 | 159 | 552 |
| 1999 | 9479 | 6527 | 712 | 150 | 562 |
| 2000 | 10986 | 7444 | 893 | 251 | 655 |
| 2001 | 11345 | 7674 | 957 | 315 | 706 |
| 2002 | 11574 | 7870 | 965 | 269 | 677 |
| 2003 | 12239 | 8234 | 1019 | 311 | 704 |
| 2004 | 14277 | 10327 | 1258 | 290 | 873 |
| 2005 | 16346 | 11343 | 1440 | 342 | 1245 |
| **Slovakia** | | | | | |
| Exports | TOTAL | EU15 | CEE7 | Russia | Cand count |
| 1995 | 6556 | 2453 | 3002 | 253 | 147 |
| 1998 | 9559 | 5326 | 3040 | 181 | 196 |
| 1999 | 9581 | 5701 | 2767 | 97 | 184 |
| 2000 | 12811 | 7589 | 3760 | 115 | 259 |
| 2001 | 14063 | 8445 | 4097 | 144 | 307 |
| 2002 | 15234 | 9246 | 4176 | 152 | 392 |
| 2003 | 19304 | 11735 | 4596 | 236 | 497 |
| 2004 | 22225 | 13343 | 5563 | 271 | 612 |
| 2005 | 25759 | 14855 | 7091 | 403 | 856 |
| Imports | TOTAL | EU15 | CEE7 | Russia | Cand count |
| 1995 | 7332 | 2564 | 2458 | 1224 | 61 |
| 1998 | 12743 | 6433 | 3073 | 1338 | 74 |
| 1999 | 10619 | 5491 | 2397 | 1275 | 62 |
| 2000 | 13816 | 6789 | 2871 | 2346 | 91 |
| 2001 | 16481 | 8229 | 3589 | 2431 | 141 |
| 2002 | 17517 | 8841 | 3891 | 2199 | 166 |
| 2003 | 19910 | 10267 | 4458 | 2134 | 228 |
| 2004 | 23907 | 12222 | 6490 | 2207 | 233 |
| 2005 | 28459 | 13767 | 8369 | 2980 | 308 |

## APPENDIX 2 GDP in the EU countries in constant and current prices, 1995–2006

Table 8 GDP per capita (EUR) in 1995–2006 in constant prices

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|
| **Belgium** | 21400 | 21700 | 22400 | 22700 | 23400 | 24200 |
| **Czech Republic** | 4100 | 4300 | 4200 | 4200 | 4300 | 4400 |
| **Denmark** | 26600 | 27200 | 27900 | 28400 | 29100 | 30000 |
| **Germany** | 23600 | 23800 | 24200 | 24700 | 25200 | 25900 |
| **Estonia** | 2000 | 2100 | 2400 | 2500 | 2500 | 2800 |
| **Ireland** | 14200 | 15300 | 16900 | 18000 | 19700 | 21100 |
| **Greece** | 8500 | 8600 | 8800 | 9100 | 9400 | 9800 |
| **Spain** | 11600 | 11800 | 12300 | 12800 | 13300 | 13900 |
| **France** | 20200 | 20400 | 20700 | 21400 | 22000 | 22700 |
| **Italy** | 15100 | 15300 | 15500 | 15800 | 16100 | 16600 |
| **Latvia** | 1500 | 1600 | 1800 | 1900 | 1900 | 2100 |
| **Lithuania** | 1400 | 1400 | 1600 | 1700 | 1700 | 1800 |
| **Luxembourg** | 38600 | 38600 | 40400 | 42500 | 45400 | 48600 |
| **Hungary** | 3300 | 3400 | 3500 | 3700 | 3900 | 4100 |
| **Netherlands** | 20700 | 21300 | 22100 | 22900 | 23800 | 24500 |
| **Austria** | 23100 | 23600 | 24000 | 24900 | 25600 | 26400 |
| **Poland** | 2800 | 3000 | 3200 | 3300 | 3500 | 3600 |
| **Portugal** | 8700 | 9000 | 9300 | 9700 | 10100 | 10400 |
| **Slovenia** | 7800 | 8100 | 8500 | 8800 | 9300 | 9700 |
| **Slovakia** | 2800 | 3000 | 3200 | 3300 | 3300 | 3300 |
| **Finland** | 19600 | 20200 | 21400 | 22400 | 23300 | 24400 |
| **Sweden** | 21700 | 22000 | 22500 | 23300 | 24300 | 25300 |
| **United Kingdom** | 15000 | 15400 | 15900 | 16300 | 16800 | 17400 |
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
| **Belgium** | 24400 | 24600 | 24700 | 25400 | 25700 | 26200 |
| **Czech Republic** | 4600 | 4700 | 4800 | 5000 | 5300 | 5700 |
| **Denmark** | 30100 | 30100 | 30200 | 30700 | 31600 | 32600 |
| **Germany** | 26200 | 26200 | 26100 | 26400 | 26600 | 27400 |
| **Estonia** | 3000 | 3300 | 3600 | 3900 | 4300 | 4800 |
| **Ireland** | 22100 | 23100 | 23700 | 24300 | 25200 | 26000 |
| **Greece** | 10200 | 10600 | 11000 | 11500 | 11900 | 12400 |
| **Spain** | 14200 | 14400 | 14600 | 14800 | 15100 | 15400 |
| **France** | 23000 | 23000 | 23100 | 23500 | 23800 | 24100 |
| **Italy** | 16900 | 16900 | 16800 | 16800 | 16700 | 17000 |
| **Latvia** | 2300 | 2400 | 2600 | 2900 | 3200 | 3600 |
| **Lithuania** | 1900 | 2000 | 2300 | 2400 | 2700 | 2900 |
| **Luxembourg** | 49400 | 50900 | 51400 | 53100 | 54900 | 57400 |
| **Hungary** | 4200 | 4400 | 4600 | 4900 | 5100 | 5300 |
| **Netherlands** | 24800 | 24700 | 24700 | 25100 | 25400 | 26200 |
| **Austria** | 26500 | 26600 | 26900 | 27300 | 27600 | 28400 |
| **Poland** | 3700 | 3700 | 3900 | 4100 | 4200 | 4500 |
| **Portugal** | 10500 | 10500 | 10400 | 10500 | 10500 | 10600 |
| **Slovenia** | 10000 | 10300 | 10600 | 11100 | 11500 | 12100 |
| **Slovakia** | 3400 | 3600 | 3700 | 3900 | 4100 | 4500 |
| **Finland** | 24900 | 25300 | 25700 | 26600 | 27300 | 28500 |
| **Sweden** | 25500 | 25900 | 26300 | 27300 | 27900 | 28900 |
| **United Kingdom** | 17700 | 18000 | 18400 | 18900 | 19200 | 19600 |

(Eurostat)

Table 9 GDP per capita (EUR) in 1995–2006 in market prices

| | **1995** | **1996** | **1997** | **1998** | **1999** | **2000** |
|---|---|---|---|---|---|---|
| **Belgium** | 21400 | 21400 | 21600 | 22300 | 23300 | 24600 |
| **Czech Republic** | 4100 | 4700 | 4900 | 5400 | 5500 | 6000 |
| **Denmark** | 26600 | 27600 | 28500 | 29300 | 30700 | 32500 |
| **Germany** | 23600 | 23500 | 23200 | 23800 | 24500 | 25100 |
| **Estonia** | 2000 | 2600 | 3100 | 3600 | 3800 | 4400 |
| **Ireland** | 14200 | 16100 | 19600 | 21200 | 24200 | 27500 |
| **Greece** | 9500 | 10200 | 11100 | 11300 | 12100 | 12600 |
| **Spain** | 11600 | 12400 | 12800 | 13500 | 14500 | 15700 |
| **France** | 20200 | 20800 | 21000 | 21900 | 22700 | 23700 |
| **Italy** | 15100 | 17400 | 18500 | 19100 | 19800 | 20900 |
| **Latvia** | 1500 | 1800 | 2300 | 2500 | 2900 | 3600 |
| **Lithuania** | 1400 | 1800 | 2500 | 2800 | 2900 | 3500 |
| **Luxembourg** | 38600 | 39000 | 38800 | 40500 | 46000 | 50200 |
| **Hungary** | 3300 | 3500 | 3900 | 4100 | 4400 | 5100 |
| **Netherlands** | 20700 | 21200 | 21900 | 22900 | 24400 | 26300 |
| **Austria** | 23100 | 23400 | 23100 | 24000 | 25000 | 26300 |
| **Poland** | 2800 | 3200 | 3600 | 4000 | 4100 | 4900 |
| **Portugal** | 8700 | 9200 | 9800 | 10400 | 11200 | 12000 |
| **Slovenia** | 7800 | 8100 | 8800 | 9500 | 10200 | 10600 |
| **Slovakia** | 2800 | 3100 | 3500 | 3700 | 3600 | 4100 |
| **Finland** | 19600 | 19800 | 21200 | 22600 | 23800 | 25600 |
| **Sweden** | 21700 | 24300 | 24900 | 25200 | 26900 | 29600 |
| **United Kingdom** | 15000 | 16200 | 20200 | 21900 | 23600 | 26700 |
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
| **Belgium** | 25200 | 25900 | 26500 | 27800 | 28500 | 29800 |
| **Czech Republic** | 6800 | 7800 | 7900 | 8600 | 9800 | 11100 |
| **Denmark** | 33500 | 34400 | 35000 | 36300 | 38400 | 40500 |
| **Germany** | 25700 | 26000 | 26200 | 26800 | 27200 | 28200 |
| **Estonia** | 5100 | 5700 | 6400 | 7100 | 8300 | 9800 |
| **Ireland** | 30300 | 33200 | 34900 | 36600 | 38900 | 41100 |
| **Greece** | 13500 | 14300 | 15500 | 16700 | 17900 | 19300 |
| **Spain** | 16700 | 17700 | 18600 | 19700 | 20900 | 22300 |
| **France** | 24500 | 25100 | 25700 | 26600 | 27300 | 28400 |
| **Italy** | 21900 | 22700 | 23200 | 23900 | 24300 | 25100 |
| **Latvia** | 4000 | 4200 | 4300 | 4800 | 5700 | 7100 |
| **Lithuania** | 3900 | 4300 | 4800 | 5300 | 6100 | 7000 |
| **Luxembourg** | 51100 | 53800 | 57000 | 59900 | 64599 | 71600 |
| **Hungary** | 5800 | 7000 | 7400 | 8100 | 8800 | 8900 |
| **Netherlands** | 27900 | 28800 | 29400 | 30200 | 31200 | 32700 |
| **Austria** | 26800 | 27300 | 27900 | 28900 | 29800 | 31100 |
| **Poland** | 5600 | 5500 | 5000 | 5300 | 6400 | 7100 |
| **Portugal** | 12600 | 13100 | 13300 | 13700 | 14100 | 14700 |
| **Slovenia** | 11300 | 12100 | 12700 | 13400 | 14100 | 15200 |
| **Slovakia** | 4400 | 4800 | 5400 | 6300 | 7100 | 8200 |
| **Finland** | 27000 | 27700 | 28000 | 29100 | 30000 | 31700 |
| **Sweden** | 27800 | 29000 | 30100 | 31300 | 31900 | 33700 |
| **United Kingdom** | 27300 | 28300 | 27100 | 29200 | 30000 | 31500 |

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