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INFLUENCES OF CHANGING ECONOMIC STRUCTURE ON THE ECONOMIC GROWTH

By

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INTRODUCTION

The research of the dissertation has started from the main aim of employment issues and its separation among the economic sectors, and the efficiency of human resource in the economic activities of the sectors. Also the study would like to make compares in the international field in the changing economic structure from point of view of separation of human resource and capital, or technology, know how, techniques.

As the title of the dissertation, namely: Influences of changing economic structure on the economic growth, determines the main aim of research, that changing economic structure has considerable influences on the all economic growth, so in this case the study focuses on the changing economic structure based on the separation of human resource and other production inputs among the economic sectors.

The study emphasizes the examples, which are as follows:

.- in the European Union (EU) and country-group in Middle East and North Africa (MENA) including Gulf Cooperation Council (GCC) economies;

.- people at-risk-of-poverty or social exclusion in EU;

.- economic growth in field of GDP;

.- efficiency of labour force;

.- capacity for investments to increase workplaces, jobs at first for local national human resources to extent the national internal markets and to increase the import and create the export capacity based on the export orientated economic growth.

.- by through of investment activities to achieve to change the economic structure in order to realize economic growth.

Sometimes the question can emerge that how the increase of investment can be efficient for interest of the economic growth measured in GDP (Gross Domestic Product) and also these investments can result in increasing the jobs or workplaces for human resources or these investments only increase the use of modern advanced technology and techniques without increasing the number of the workplaces? Naturally the investments can result in developing technology and technique without increasing employment level. In spite that the investment activities can increase the GDP growth, it does not mean that the number of workplace increases, too. Also there is a difficult for the research that how this economic correlation between the GDP growth and changing number of workplace can be followed in case of the EU, as an international regional economic integration or in case of the MENA (Middle East and North Africa) region, which cannot be so regional economic integration, in spite that the Arab countries of the Arab-Gulf region have reached considerable results in their economic cooperation and integration, too.

The other question can emerge that how the increasing employment level resulted by the investment can be efficient concerning the changing wages, the inflation at national level or level of country-group, as the EU or MENA region including the most important Arab economies in OAPEC (Organization of Arab Petrol Exporting Countries) or OPEC (Organization of Petrol Exporting Countries), for example Saudi Arabia, Kuwait, State of Qatar or United Arab Emirates (UAE).

Also the other question can emerge that how much investment activities can increase the *comparative advantages or the competitive advantages* or both of them can be increasing? Comparative advantages are based on the comparing the production cost or expenditures of inputs, and the competitive advantages are based on the using the advanced technology. Naturally in case of most of the economies in the world economy comparative advantages can be resulted by low cost level of the human resource. The problem is that this can not remain for longer time. For

the future the best advantage for any economy can be resulted by developing technologies and techniques. Any way the comparative advantages or the competitive advantages can make influences on the increasing export capacity.

The question can emerge that how the investment activities can increase the export possibility for any country or by which kind of advantages from both of them can dominate for increasing export?

The other issue, as question can also emerge that which kind of *changing economic structure* can be resulted by these investment activities, for example either to develop the mining industrial sector or manufacturing sector. During the long economic development it is clear that the increasing manufacturing sector can result in highly value added products, which can ensure more export income for exporting countries or can decrease the import volume from the world market in order to make more positive or less negative balance of foreign trade, which can result better favourable balance of payment to decrease the future state debt. Otherwise the increase of investment activities in field of mining sector or basic product sectors can ensure more export income, which does not means that the import can decrease, because the economy / country should increase import of highly value added products to ensure demands of internal market demands. In this case this cannot decrease the import volume, but this can only decrease the possible negative balance of payment.

Since the beginning of the XXI century about 94% of the world economy's GDP was produced by the manufacturing industrial economic branches and the remain share of this world economy's GDP, as about 6% produced in mining sector or basic product producing sectors including the agricultural one.

The other question can emerge, that *how the capital supply is going on in MENA (Middle East and North Africa) region*, which depends on mostly crude oil price

income, as export incomes of the Arab petrol exporting countries? Also the other question coming from the previous one is that *how much the absorption capability of the Arab countries* to realise investment into their owned economic life, which means that how much the Arab petrol capital can invest into own economies or outflow to the other Arab countries of MENA region by the Arab petrol capital outflow coming from Arab petrol exporting countries to the other Arab non petrol exporting countries?

If the absorption capability is low even in the Arab petrol exporting countries, the Arab capital outflow will strongly flow out of the MENA region into the rest of the world economy, mostly into highly developed countries, where the highly value added products are produced. In this case the Arab capital outflow operates as a Foreign Direct Investment (FDI) scheme in the highly developed countries. The Arab national capital has role in economic growth in the highly or higher developed countries.

Also the other question can emerge that how the forms of Arab capital inflow or outflow in the MENA region or out of the MENA region? For example there are some forms, namely the Arab petrol exporting countries created the financial institutional organizations, as Islamic Bank. Additionally to the financial institutional organizations the Arab countries created transnational corporations, which can mostly be stated owned, as their operations, corporate governance and management, they are private.

The study also focuses on some difficulties of economic growth according to the environmental conservation, in which the global warming resulted by increasing gas emission is standing in centre of attention. The gas emission has been sharply increasing since the beginning of 2000 by through of using fossil energy resources. The sustainable economic growth is based on the profitable economic activities, production and also such production technology concerning the environmental

conservation strategy to sustain the production process including the energy resources mainly without gas emission, human life and natural environment.

The question emerges that the economic growth can be or not to be solved without fossil energy resources. The human society can use or not use renewable energy resources, like sun/solar, water, wind and nuclear energy to decrease the gas emission based on the new technological process?

Also can the firms use the energy resource coming from fossil one efficiently, because these kinds of energy resources will soon be the end, and new energy resource need new technology. The main issue that can mankind use alternative energy resources to decrease the gas emission?

Also the other difficulty is that which kind of economic sector – branch structure can ensure the best method or way for the economic growth? In the highly developed economies the service sector has dominant share of the national GDP, namely more than 50%, and the industry sector has about 30%, and finally the agricultural sector has only maximum 4% of the GDP.

In case of OPEC and OAPEC countries the mining industry has almost share of 50-80% from GDP, namely the crud oil mining industry. Recently the manufacturing sector has more and more share from GDP, namely 10-20%, which can not be considerable. The Arab capital inflow from OAPEC countries is also considerable highly because of their absorption capability is at very low level, this means that

.- the investment possibility is very low based on the reasons coming from their economic conditions, namely

.- the human power resource supply is at low level on the human resource market,

.- very narrow the internal consuming market, the

.- the given geographical situations are very unfavourable,

.- the mining fields are very far from the using fields of manufacturing industry and from the internal consuming market,
.- mining fields are often placing very far from the road-transport network of the world economy and world trade,
.- the large destination increase the cost of transports.

Also the question can emerge that how changing economic structure is depending on the branch separation of human power and resource and labour productivity of human resource? Naturally it is difficult to reply for all of these questions emerged and written above, but in this study I can try to reply some of them.

Within the dissertation there some hypothesis, which are as follows:

.1- It would be proofed that the *GDP grow is not depend directly on increasing the employment level.*
.2- Mainly the *investment capacity* of Arab crude oil export countries depends on real export price-income coming from crude oil export and their Purchasing Power Parity (PPP) for export countries.
.3- The *investment* form of the Arab capital flow in the Arab world or in the OAPEC Arab countries *in field of mining industry can be successful.*
.4- The *Arab capital outflow* from the Arab world can be realised most successful in forms of *transnational corporations* based on the private management, but like as state owned corporations within the scheme of Foreign Direct Investment.
.5- *Islamic Arab Bank (*IAB*)* is the most important Arab financial organization, which in a fact as Arab transnational corporation can be responsible for the Arab capital flow within the Arab world or out of theirs to the rest of the world economy. Additionally to the IAB, there are many Arab national funds responsible for the Arab capital flow.

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1. LITERARY REVIEW

1.1 Some theories of comparative advantages

According to Salvatore, Dominic (Salvatore, 2011), who emphasized some principles of *theory of comparative advantage* accompanying his opinions, namely most nations would like to realise free trade for themselves in order to get better profit and price incomes and most of them continue to impose many requisitions on international trade.

He emphasized that the first empirical test of the theory of comparative advantage based on labour productivities and costs was conducted by *MacDougall* in 1951 and 1952, using labour productivity and export data for 25 industries in the United States and the United Kingdom for the year 1937. Since wages were twice as high in the United States as in the United Kingdom, MacDougall argued that costs of production would be lower in the United States in those industries where American labour was more than twice as productive as British labour. These would be the industries in which the United States had a comparative advantage with respect to the United Kingdom and in which it would undersell the United Kingdom in the rest of the world. On the other hand, the United Kingdom would have a comparative advantage and undersell the United States in those industries where the productivity of British labour was more than one-half as productive as American labour. MacDougall's empirical results showed that this was indeed true for 20 out of the 25 industries that he studied (MacDougall, 1951; also in EC, 1993; Bhagwati, 2002; Irwin, 2002).

Salvatore, Dominic (Salvatore, 2011) pointed out that even *Balassa* analysed the positive relationship between *labour productivity* and *exports* for the United States and the United Kingdom, which was confirmed by subsequent studies by *Balassa* using 1950 data and *Stern* using 1950 and 1959 data. More recently, the Ricardian trade model was confirmed by *Golub* for trade between the United States and Japan using 1990 data for 33 industries and by Golub and Hsieh; for trade between the United States and nine other countries Japan, Germany, the United Kingdom, France, Italy, Canada, Australia, Mexico, and Korea) using data for 39 sectors from 1972 to 1991 (Ricardo, 1921; Stem, 1962). Thus, production costs other than labour costs, demand considerations, political ties, and various obstructions to the flow of international trade did not seem to break the link between relative labour productivity and export shares (Golub, 1995; Golub - Hsieh, 2000; Stern - Tubiana, 2008; Balassa, 1962).

Also Salvatore, D. (Salvatore, 2011) over his theorem of comparative advantages, who extend his theory with *Heckscher-Ohlin model* concerning the foreign trade, as he wrote:

"The factor-price equalization theorem of the *Heckscher-Ohlin* (H-O) model postulates that *international trade will bring about equalization in the returns to homogeneous or identical factors across nations.* What this means is that international trade will cause the wages of the same type of labour (Le, labour with the same level of training, skills, and productivity) to be the same in all trading nations (in the absence of trade restriction, transportation costs, and other assumptions). Similarly, international trade will cause the return or earnings of homogeneous capital (Le, capital of the same productivity and risk) to be the same in all trading nations. Both relative and absolute factor prices are equalized." (Also see in detailed in Salvatore ed., 1993).

Naturally as experts declared above, I can state that the free flow of trade encourage to create the equilibriums of product structure of different economies by

through of free product flow, and decrease the difference of product structure among nations and also the production cost for products. The free trade makes press on the nations to create the production process as possible as at the lower level of production costs in direction to the free trade. Porter (2001) analysed the competitiveness of nations in detailed (see in Porter, 2001).

Based on this equilibrium by through of free trade the EU extents the free trade as free flow of products with free flow of the other three elements, namely labour, capital and services. Therefore the free trade is focusing on the free flow of results of production, as products completes with free flow of other production inputs (capital, and labour). But over the production process there is service sector, as the fourth element, which also can stimulate to decrease the production costs, because service sector plays role as background position for the production process. Sometimes the service sector means as infrastructure network for the production network, or production process (OECD, 1997; Maskell et al, 1998; Irwin, 2002).

My opinion that completely free flow of four elements stimulates and results in decreasing in expenditures of production, including the labour force, as employee, finally takes possibility to achieve higher level of work efficiency.

1.2 The environmental conservation strategy from sides of the macro-economy

In general the earlier research works examined the performance of regulatory tools in inducing technical change (abatement cost reducing pollution control innovations) in perfectly competitive settings where firms were homogenous in terms of production and treatment processes. The environmental regulations should be studied in imperfectly competitive markets, studies in environmental economics having merged with those of industrial organization to under take comprehensive analyses of the influences of environmental regulations on technological change in

different cases concerning the strategic interactions of the agents. Changes in market-demand elasticity affect the research and development portfolio, total discharges, and production levels differently under both regulatory tools. Input price increases in production processes do not affect research and development composition, but change the total discharges and production. The gas emission became the most considerable kind of different pollutions caused by human activities (Horta et al, 2007; IEA, 2008a and 2008b).

From point of view of decreasing pollutions the environmental conservation strategy has started since the beginning of 1950s, and then many authors and experts analysed environmental regulation, which can be followed in their works, for example Magat, 1978 and 1979; McHugh, 1985; Downing – White, 1986; Milliman - Prince, 1989. Their works were considerable for analyzing various regulatory instruments and their policy implications for setting up the internationally unified environmental regulation system. Within their first works they analysed the process of regulatory tools in field of introducing technical and technological changes based on the abatement cost reducing pollution by setting up the control innovations in case of firms, they were unified in terms of production and treatment processes (Kurtzman et al, 2004; Otto et al, 2006).

At the level of micro-economy there several important factors affecting technical and technological changes, such as the nature of strategic interactions among firms in filed of industrial sector, interactions between firms and regulators, inter-industry and intra-industry spillovers, and federal research and development policies, are not explicitly considered by most of these studies (see in detailed in Downing – White, 1986; Milliman - Prince, 1989).

The role of environmental regulations

For the long-term future perspective strategy, the above mentioned environmental regulations can lead corporations to develop the innovation system or adopt new technologies based on their principal targets in direction to more secure and cleaner environment, as natural background of mankind. These issues can be overviewed in detailed for example in scientific works of Porter E. M. and van der Linde C. (1995), who indicates that it is possible for regulations to affect the direction and pace of technical and technological changes in economic branches including first the industrial one. This can be found in the pharmaceutical, chemical, and automobile industries. Properly designed environmental standards could therefore create pressure that motivates companies to innovate and to improve environmental quality, particularly in the case where the cost of compliance is higher than the cost of innovation and the resulting improvements (Porter - Linde, 1995).

Leahy D, Neary J.P, 1997; Palmer et al. (1995) experts declared that it can be noted that the relationship between regulation and technical change is *not simple and direct*, and the measurement issues involved are complex. What makes studying this relationship difficult is that there are many factors that simultaneously affect the *direction and pace of technical change, and regulation is only one of them.* It is, therefore, difficult to isolate the effects of regulation on technological innovation from the effects of other factors. There are a number of ways to measure the impact of regulations on innovation. One is to examine changes in research and development expenditure or portfolios, or patent records. On the other hand, there are no results from previous studies that can be generalized and many of these studies find that the effects of environmental regulation on research and development are ambiguous (Leahy - Neary, 1997; Palmer et al. 1995).

According to study of Lee K. T. (1986), Joshi S. and Vonortas N. S. (1996) argued that there are a number of factors that determine the research and development level in an industry depending on the strategic nature of the research and development competition. These factors include the *pre-existing stocks of technical knowledge and the functional forms* that describe the transformation of research and development inputs into technological outputs. In models that include the initial stock of technological knowledge and differentiated rates of spillovers, it has been found that the *elasticity of Nash equilibrium outputs and technical knowledge* with respect to research and development expenditure, and the degree of the convexity of the unit cost function, affect the equilibrium level of firm research and development investments (see Lee, 1986; Joshi – Venortas, 1996; Chevalier - Méritet, 2009).

My opinion is that the *expenditure* of research and development decreasing environmental pollution for their transformation into technological outputs *should be returned* in process of production of firms. It means that firms can have enough positive balance sheet by through covering plus production expenditure resulted by the using new advanced environment friendly technologies and innovations.

Also Ziss (1994) described, using a two-stage research and development and output or price duopoly game, that under non cooperative regimes marginal cost-reducing research and development induces the investing firm to expand output under output competition and reduce price under price competition for any size of spill-over. Under non-cooperative games, Ziss found that the strategic aim of investment is to move along there action function of the rival from the Nash point toward the Stackelberg point. However, Ziss mentioned that the results of research and development games cannot be generalized and depend on model assumptions and specifications (Ziss, 1994; see more detailed in Fasano, 2000; Fasano - Iqbal, 2003).

Furthermore, Arora S, - Cason, T.N. (1995) showed how research and development market structure determines the level of environmental protection and involvement of firms in Environmental Protection Agency (US EPA, 1993a and 1993b; US Bureau of the Census, 1994) volunteer programs that emphasize pollution prevention. They found that firms have an incentive to develop production processes and products that cause less *pollution during their production*. Firms in industries with greater research and development expenditure are able to allocate resources to *pollution prevention research more efficiently*, and hence are more likely to participate in the volunteer programs. If there are economies of scale, then firms with greater existing research and development expenditure may find it less costly to allocate additional resources to *environmental research and development*. The empirical results support the idea that firms in industries already engaged in substantial research and development effort have the capability to devote resources to pollution prevention research and development (IEA, International Energy Agency, 2008a and 2008b).

Also I would like to emphasize the importance of Kohn E.R. (1997) studied the relationship among *environmental regulatory instruments* (for example, emission taxes and abatement subsidies) and market structure. He found that total output and emissions for an industry decline with emission taxes. However, his results indicate that output and emission levels of individual polluting firms might remain constant, increase, or decrease depending on whether there is increasing, decreasing, or constant returns to scale in abatement in a perfectly competitive environment. In addition, the results show that the number of polluting firms may increase even though *emission taxes cause the total output to decline*. Furthermore, Kohn (1997) found that when the price elasticity of demand is sufficiently small, the scale of the individual firms and the total industry output change in opposite directions (Kohn, 1997).

The other expert Sigman H. (1996) examined cross-media responses to public policies that restrict toxic air emission and increase waste management costs. He found that regulating one specific medium might alter the release of other media, which might be a substitute or complement in the production process. For example, factories appear to respond to more stringent air toxic standards by reducing all forms of emitted waste, not only that into the air. It also appears that as the waste treatment cost increases, so does the release of air emissions. Sigman (1996) further showed that reductions in toxic air emissions and waste generation might be brought about by pollution prevention in the form of changes to production processes. Furthermore, some firms might prefer to pollute rather than reduce the use of chemicals (Sigman, 1996).

According to some scientific sources and references, I can declare that there are many economic and governmental factors and regulations operating simultaneously that determine for companies to invest in research and development to create new technologies decreasing pollution. Some of these factors include the nature of the competition, market structure, firm heterogeneity, scale and risks of research and development projects, and government research and development policy. Furthermore, there are conflicting findings in the literature in regard to the effects of environmental regulations on research and development and technical change under imperfectly competitive market structures concerning Damian (2007).

According to the works of De Bondt R. (1996), he achieved research works with the results in the field of environmental regulations with decreasing gas emission having promoted research and development and innovations by certain firms in the industry, but not by others. Whether a firm devotes more resources to environmental research and development or adopts technological innovations in the presence of regulations can depend on a number of factors. He declared that these include firm size, the nature of strategic interactions among firms in the industry, interaction between firms and the regulatory agency, inter-industry and intra-

industry spill-over, the risks and scale of investments, and the potential for strategic advantage through innovation (De Bondt, 1996; Oxfam International, 2007; Rubio Alvarado - Wertz-Kanounnikoff, 2007).

Also the other experts achieved designing successful environmental regulations, for example Erbas B.C. – Abler D.G. (2008) showed that symmetric and asymmetric research and development spill-over affect the performance of the regulatory tools in inducing pollution preventive measures, and pollution control research and development and these spill-over play crucial roles in technology development and strategies of the firms in the US pulp. The results describe and discuss the special research and development related scenarios where a performance standard might be a more preferred regulatory tool than tax (Erbas – Abler, 2008).

As Erbas and Abler (2008), also Celikkol B, (1998) has the objective, which is not to compare the two regulatory tools a performance standard per unit of paper production and a tax on total *absorbable organic halides (AOH)* discharge - but to unearth the effects of market conditions on research and development, output, and total discharges under two types of regulatory instrument. This article helps us to understand the ways in which these factors affect the aforementioned variables and why these factors need to be considered in regulatory designs (Celikkol, 1998).

1.3 Technology for preventing pollution

Additionally to authors mentioned above, the US EPA also analyzes the potential process changes in reducing toxins in mill effluents by emphasizing pollution prevention (US EPA, 1993a and 1993b). Pulping and industrial processes, and bleach plants are the main sectors of the production where pollution prevention is used. Pollution prevention is promoted and facilitated by the duster rules that identify optimal approaches to solve environmental problems associated with the industry through regulatory coordination. The EPA focuses more on pollution

prevention in regulating the industry so as to provide more flexibility in compliance (also see Tourbach, 2007).

The industry consists of heterogeneous firms (US Bureau of Census 1992a, 1992b; US EPA 1993a and 1993b). The composition of the firms and pollution intensity in the pulp and paper industry make it a good candidate to analyze the effects of our factors of interest on the performance of the two regulatory tools chosen. *Market conditions determine c*hanges, which are depending on the market structure, can affect research and development levels, the industry output, and total discharges. As D'Aspremont C. and Jacquemin A. (1998) there was to investigate the nature of changes in marketing conditions we run four scenarios:
(1) changes in the elasticity of the market demand,
(2) increase in pulp production input prices,
(3) increase in paper production input prices, and
(4) increase in wastewater treatment composite input. (D'Aspremont – Jacquemin, 1998).

There is a special example given by the US EPA 1993a and 1993b, which describes the correlation between *wastewater treatment composite input price and the* production, profit, total discharges and discharge solution in case of firms under emission tax system in US, which are as follows:

Casey J.P., (1981) declared that when abatement becomes more expensive, firms might prefer to pollute and pay taxes. Similar to some of the earlier findings, firms under tax regulation might become dirtier depending on the sensitivity of changes in abatement in response to decreases in control research and development. Unlike the price increases for other production inputs, paper production and total discharges are less sensitive to the increase in marginal cost of treatment due to a 10% price increase in the price of wastewater treatment composite input (Casey, 1981).

In spite that tax ordered by national governments in order that the national governments use influences on the firms to decrease the pollution by through of gas emission the experts can declare that an emissions tax does not necessarily decrease the total output and profits in the industry (Arpan, et al, 1986; Arora – Cason, 1995; Leite - Weidmann, 1999). They found that under certain circumstances such as treatment composite input price increase, total pollution and output in the industry increase under tax regulation. This finding does not support that of Kohn (1997) that total output and emission in an industry decline with emission taxes. On the other hand, his findings that the amount of pollution may increase even though emission taxes cause a decline in total output, is consistent with our findings under certain circumstances.

The results of this study also support that of Sigman, H. (1996) that firms in some cases might prefer to pollute rather than to reduce the use of chemicals. US EPA (1993a and 1993b; and Arpan, 1986; American Forest and Paper Association, 1993) found that under tax regulation, firms prefer to pollute and pay taxes rather than reducing the input use and production level. One of Sigman's results indicates that as the waste treatment cost increases, the release of air emissions also increases. Similarly, they found that as the prices of input in wastewater treatment increase, the total pollution and output increase when under tax regulation.

In summary of this study following findings

.- Changes in market-demand elasticity affect the research and development portfolio, total discharges, and production levels differently under both regulatory tools (Yashir, 1988; Celikkol, 1998; World Bank, 2005).

- Input price increases in production processes do not affect research and development composition, but change the total discharges and production. Unlike

an abatement process, initial asymmetries in production encourage changes in both pollution prevention and control research and development (Karl, 1999; Celikkol, 1998, Downing - White, 1986).

- Initial asymmetries in production alter the composition of dirty and clean firms as well as total industry discharges (Erbas - Abler, 2008, Leahy - Neary, 1997; O'Higgins, 2006).

- Effects of the factors are different under both regulatory tools, a point that indicates that regulatory design should consider these factors (Arora - Cason, 1995; Truman, 2007).

My opinion meeting opinions of other expert mentioned earlier, that market conditions are important elements of regulation given by government's decision within law system. Also I emphasize the advantages and disadvantages of the regulatory means of the government in direction to companies. It is important to investigate these factors, namely such as uncertainties in research and development and in regulatory design, technology adoption activity of the firm, innovation, technologies decreasing gas emission, enforcement, and fine structures, which demand different modelling and specifications. The general aim at contributing to the successful design and management of regulatory schemes in reaching a cleaner environment including less gas emission, as it can be possible and stronger economy.

2. MATERIAL AND METHODS

2.1 Theories for comparative advantages

According to methods of research analysis the *comparative advantages* and mercantilism theorem are the basic principles for the understanding and deeply analysing the movements of products or commodities among economies of different regions of the world economy.

The comparative advantages can explain the reasons of foreign trade directions from country to the other county based on their economic, social and natural characters influencing on the production costs. The economic characters consisting of several elements, for example highly developed techniques and technologies. The social characters can be set up on employment and unemployment issues based on the kinds of human resources, like skilled consequently of educated level. Also natural characters of economies, for example how much natural energy resource or basic raw materials concentrate in any country or region.

For example 80% of energy resources and raw materials can be found in developing or less developed economies of the world economy. This natural background provides comparative advantages for developing countries, in spite that their economies are not developed. The reason of the comparative advantages of developing countries is that they do not have any material or commodity more to export or to supply demands of the world economy (Hotelling, 1931; Helm, 2007). Naturally I can state that the majority of the natural energy resources and raw materials are handed or owned by the transnational corporations in world-wide side.

Also there is another economic difficulty for the developing countries that the share of the basic and mining industry is about 6-8% of the world economy at present, the other one is the manufacturing industry, of which majority are owned by the transnational corporations.

From point of view of comparative advantages the main representatives of this theorem are *Adam Smith* and *David Ricardo* (Smith, 1776; Ricardo, 1821). The best definition can be got from Salvatore, Dominic (Salvatore D, 2011, pp. 33-37), which can be summarized, as this can be follow:
"..... with a brief discussion of the economic doctrine known as mercantilism that prevailed during the seventeenth and eighteenth centuries. We then go on to discuss the theory of absolute advantage, developed by *Adam Smith*. It remained for *David Ricardo*, however, writing some 40 years after Smith, to truly explain the pattern and the gains from trade with his *law of comparative advantage*. The law of comparative advantages is one of the most important laws of economics, with applicability to nations, as well as to individuals, and useful for exposing many serious fallacies in apparently logical reasoning.

One difficulty remained. Ricardo had based his *explanation* of the law of comparative advantage on the *labour theory of value,* which was subsequently rejected. In the first part of the twentieth century, *Gottfried Haberler* (1935) came to Ricardo's "rescue" by explaining the law of comparative advantage in terms of the opportunity cost theory, as reflected in production possibility frontiers or transformation curves".

Salvatore, Dominic introduces Adam Smith by his work, namely: "an organized science, originated with the publication of *The Wealth of Nations* in 1776 by Adam Smith. However, writings on international trade preceded this date in such countries as England, Spain, France, Portugal, and the Netherlands as they

developed into modern national states. Specifically, during the seventeenth and eighteenth centuries a group of men (merchants, bankers, government officials, and even philosophers) wrote essays and pamphlets on international trade that advocated the economic philosophy of mercantilism." (Salvatore, 2011, pp. 33-34; Adam Smith, 1776).

Also Salvatore D. (2011) declared that "most nations claim to be in favour of free trade, most of them continue to impose many requisitions on international trade. Most industrial nations restrict imports of agricultural commodities, textiles, shoes, steel, and many other products in order to protect domestic employment. They also provide subsidies to some of their high-tech industries, such as computers and telecommunication, deemed essential for the international competitiveness of the nation and its future growth. Developing countries are even more protective of domestic industries. As over protection (in the form of tariffs and quotas) has been reduced or eliminated over the years through multilateral negotiations, other less explicit types of protection (such as tax benefits and subsidies for research and development) have been increased. This is evidenced by the numerous trade disputes that have arisen over the years.

According to Adam Smith, trade between two nations is based on absolute advantage. When one nation is more efficient than (or has an absolute advantage over) another in the production of one commodity but is less efficient than (or has an absolute disadvantage with respect to) the other nation in producing a second commodity, then both nations can gain by each specializing in the production of the commodity of its absolute advantage and exchanging part of its output with the other nation for the commodity of its absolute disadvantage. By this process, the resources of both nations are utilized most efficiently and the output of both commodities will rise. The increase in the output of both commodities measures the gains from specialization in production available to be divided or shared between the two nations through trade." (Salvatore, 2011, pp. 40-41).

My opinion that in case of this theorem the OPEC countries including Kingdom of Saudi Arabia have comparative advantages in exporting crude oil, because they have highly profitable in case of export of crude oil comparing the costs of crude oil mining from side and the world price of the crude oil in he same time. But point of view of the manufactured products' prices the highly developed economies have comparative advantages against energy resource and raw material exporting countries, which highly developed economies are strengthened by the diversified economic structure in order that their economic structure can be flexible to meet the demands of the world market (Also see more detailed Eifert et al, 2002; IEA, International Energy Agency, 2005; Zhang, 2008; Mankiw - Taylor, 2011).

Also my opinion that the majority of energy resource and raw material exporting countries are developing economies mainly by one kind of energy resources and raw materials, which takes them be sensitivity and very depend on the sharply fluctuating world price level of this one product. This means that these developing countries have mostly one side economic structure and they can not be flexible for meeting the changing demands of the world market. When the world price level of their energy resource and raw material decreases, this resulted in decreasing their export incomes and their internal economic growth with declining the investments and employment level. The decreasing export income makes the increasing unbalance for balance of payment and balance of governmental budget accompanying the increasing the foreign debts for the national economies.

Also the other former expert of the history of the economics is *David Ricardo,* who is introduced by Salvatore, Dominic (Salvatore, 2011, pp. 42-43): "In 1817 *David Ricardo* published his *Principles of Political Economy and Taxation*, in which he presented the *law of comparative advantage*. This is one of the most important and unchallenged laws of economics, with many practical applications. Demonstrating is that both nations can indeed gain by each specializing in the production and

exportation of the commodity of its comparative advantage. For simplicity, our discussion will initially refer to only two nations and two commodities. In the appendix to this chapter, the conclusions will be generalized to trade in more than two commodities and more than two nations.

According to the law of comparative advantage (and disregarding the exception noted earlier), even if one nation (the United Kingdom in this case) has an absolute disadvantage in the production of both commodities with rasped to the other nation (the United States), there is still a basis for mutually beneficial trade. But how, you may ask, can the United Kingdom export anything to the United States if it is less efficient than the United States in the production of both commodities? The answer is that wages in the United Kingdom will be sufficiently lower than wages in the United States so as to make the price of cloth (the commodity in which the United Kingdom has a comparative advantage) lower in the United Kingdom, and the price of wheat lower in the United States *when both commodities are expressed in terms of the currency of either nation."* (Salvatore, 2011).

Cline, W. R, (2011) shows some data, which proof as my opinion, that how the labour force or the work can be more efficient based on the ensuing free flow of four elements in the world economy and EU. In those countries, where the free flow of four elements can be realised the capital and labour force can be favourable, or cheaper, namely the revealed comparative advantage can be more successful, see the Table 2-1 below.

The Table 2-1 shows how highly developed economies got the Revealed Comparative Advantages in fields of capital and skilled, and the developing countries do not have this one. Also the Table provides data that the developing countries have dominate position in field of unskilled human resources against the highly developed economies, but this position of developing countries can not successful for the future in case of their using highly level advanced technology to

obtain the competitive advantages (Cline, 2011).

Table 2-1: Revealed Comparative Advantage of Various Countries and Regions

Country	Capital	Skilled	Unskilled
United States	0.11	0.06	-0.30
European Union	0.03	0.01	-0.06
Japan	0.07	0.15	-0.50
Canada	0.19	-0.25	-0.03
Rest of OECD[a]	0.00	-0.01	0.01
Mexico	-0.05	-0.02	0.01
Rest of Latin America	-0.16	-0.23	0.47
China	-0.24	-0.25	0.44
India	-0.04	-0.64	0.37
Hong Kong, South Korea, Taiwan, Singapore	- 0.11	-0.03	0.14
Rest of Asia .	- 0.33	-0.05	0.40
Eastern Europe (Including Russia)	- 0.08	-0.31	0.36
OPEC[b]	- 0.09	-0.29	0.45
Rest of the world	- 0.17	-0.18	0.40

a = OECD, Organization for Economic Cooperation and Development, which includes all the other industrial countries.
b = OPEC, Organization of Petroleum Exporting Countries.
Source: Cline, W. R, *Trade and Income Distribution*, 2011, op. cit., p. 192.

2.2 Theory of efficiency wages

Additionally to Salvatore, Dominic, works of Mankiw, N. Gregory and Taylor, Mark P. (Mankiw - Taylor, 2011, p. 219) created the *Theory of efficiency wages*, which are as follows:

"A fourth reason why economies always experience some unemployment - in addition to job search, minimum wage laws and unions - is suggested by the theory of efficiency wages. According to this theory, firms operate more efficiently if wages are above the equilibrium level. Therefore, it may be profitable for firms to keep wages high even in the presence of a surplus of labour."

In some ways, the unemployment that arises from efficiency wages is similar to the unemployment that arises from minimum wage laws and unions. In three cases, unemployment is the result of wages above the level that balances the quantity of labour supplied and the quantity of labour demanded. Yet there is also an important difference. Minimum wage laws and unions prevent firms from lowering wages in the presence of a surplus of workers. *Efficiency wage theory states* that such a constraint is on firms, which unnecessary in many cases, because firms may be better off keeping wages above the equilibrium level.

Why should firms want to keep wages high? This decision may seem odd at first, for wages are a large part of firms' costs. Normally, we expect profit-maximizing firms to want to keep costs - and therefore wages - as low as possible. The novel insight of efficiency wage theory is *that paying high wages might be profitable because they might raise the efficiency of a firm's workers*. (Mankiw - Taylor, 2011, p. 219). There are several types of efficiency wage theory. Each type suggests a different explanation for why firms may want to pay high wages. Let's now consider four of these types.". Also these authors (Mankiw - Taylor, 2011, p. 219- p. 220) describe the *Worker Effort*, which are as follows:

"A third type of efficiency wage theory emphasizes the *link between wages and worker effort*. In many jobs, workers have some discretion over how hard to work. As a result, firms monitor the efforts of their workers, and workers caught shirking their responsibilities can be disciplined and possibly dismissed. But not shirkers are caught immediately because monitoring workers is costly and imperfect. *A firm can respond to this problem by paying wages above the equilibrium level*. High wages make workers more eager to keep their jobs and, thereby, give workers an incentive to put forward their best effort."

Also they descried the *Worker Quality* (Mankiw - Taylor, 2011, pp. 219-220): "A fourth and final type of efficiency wage theory emphasizes the link between wages and worker quality. When a firm hires new workers, it cannot perfectly gauge the quality of the applicants. By paying a high wage, the firm attracts a better pool of workers to apply for its jobs."

Heckscher-Ohlin (H-O) theorem

The other important *Heckscher-Ohlin (H-O) theorem, as* Salvatore, Dominic (Salvatore, Dominic, 2011, p. 85 – 86.) definite:

"The *Heckscher-Ohlin (H-O) theorem* postulates that *a nation will export the commodity whose production requires the intensive use of the nation's relatively abundant and cheap factor and import the commodity whose production requires the intensive use of the nation's relatively scarce and expensive factor*. In short, the relatively labour-rich nation exports the relatively labour-intensive commodity and imports the relatively capital-intensive commodity.

Of all the possible reasons for differences in relative commodity prices and comparative advantage among nations, the *Heckscher-Ohlin* (H-O) theorem isolates the difference in relative factor abundance, or *factor endowments*, among nations as the basic cause or determinant of comparative advantage and

international trade. For this reason, the H-O theory is often referred to as the factor proportions or factor-endowment theory. That is, each nation specializes in the production of and exports the commodity intensive in its relatively abundant and cheap factor and imports the commodity intensive in its relatively scarce and expensive factor (Salvatore, 2011).

Also he provided some meanings of this theorem: "Thus, the *Heckscher-Ohlin* (H-O) theorem *explains* comparative advantage rather than assuming it (as was the case for classical economists). The H-O theorem postulates that the difference in relative *factor* abundance and relative *factor* prices is the *cause* of the pre-trade difference in relative commodity prices between two nations. This difference in *relative* factor and *relative* commodity prices is then translated into a difference in *absolute* factor and commodity prices between the two nations. It is this difference in absolute commodity prices in the two nations that is the *immediate* cause of trade."

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3. RESULTS AND DISCUSSION

In general the employment issue is one of the most important economic indicators which also can characterise the economic growth of any country additionally to other statistical data, like GDP growth, unemployment rate, investment, trade and private consumption rates. In point of view of employment conditions in the European Union there are very different levels of employment concerning the special economic situation of each EU member state. Naturally this situation depends on the actual financial, marketing and social positions of countries and their competitiveness on the world market. To analyse economic conditions of the EU, considerable issue of this international economic integration is the employment one of all EU and each member state within age group between 15 - 64, employment rate by gender (see Table 3.1-1, Figure 3.1-1A).

3.1 Employment conditions in EU

Based on statistical data concerning the employment rate by gender, age group 15-64, the EU member states diversified into main different member state groups, where the top employment rate was reached by *Denmark* (73,4%) and *Netherlands* (74,4% in 2010) continuously highly over 70% of employment level during the period of 2000- 2010. Some other EU member states have reached more than 70% of employment level, but not so higher than Denmark and Netherlands. *United Kingdom* (69,5% in 2010) and *Sweden* (72,7% in 2010) were participants of this other country group, where the employment rate was continuously over 70% of employment level.

The other two EU member states, namely *Finland* (68,1% in 2010), *Austria* (71,7% in 2010) and *Cyprus* (69,7% in 2010) have very closed employment rate to 70%.

Germany (71,1% in 2010) has reached little more than 70% of employment rate since the beginning of the 2007 year, and before 2007 the employment rate of Germany was very closed to 70%, but from underline level of its. The 70% of the employment level of the EU was significant concerning the world economic compare, because the world average employment was about only little more than 60%, and these EU member states reached more this level by mostly 10%.

Every each EU member state group – *EU-27, EU-25, EU-15; and the Euro Zone-17 and Euro Zone-16* has reached employment level little more than the world's one. There are several difficulties of the EU that 20 EU member states have employment rate of 60%, or little more or less than 60%, which in a fact led to somehow the world economic average employment rate. These member states were majority of the EU. There were EU member states, which could reach level of 60% or between 60-70% of employment rate, which are as follows: *France, Belgium, Czech Republic, Ireland, Estonia, Latvia, Lithuania, Luxembourg, Portugal, Slovenia* and *Spain*. Naturally from this country group there were one or two countries, which sometimes had employment rate below 60% within this age group between 15-64. There were other 8 EU member states, where the employment rate was continuously below level of 60%, namely *Greece, Italy, Malta, Bulgaria, Romania, Hungary*, *Poland* and *Slovakia,* most of them in Central East Europe additionally to the EU member states in Mediterranean Area.

The lowest employment level was in *Italy, Malta* and *Hungary* (see Table 3.1-1 and Figure 3.1-1A-E). These differences in field of employment issue were resulted by originally different developed economies before these countries became member states. Also their capital strong positions were also considerably different from each other, which resulted in different growth of investment activities stimulating the different employment level. Majority of these countries have large amount of less favourable areas, where basically the investment activities were below the average level of the EU. The unfavourable employment issue resulted in

more considerable migration from these areas to the higher developed level areas. Also there is a considerable difference in field of employment issue between EU-15 and EU-25 (see Figure 3.1-1B). In general it can be declared that in field of economic developed level continuous gap became between the EU-15 and EU-25 member state groups within the EU.

This gap was resulted by that the strongest economic developed EU member states could realise more economic growth that the other rest part of the EU. The economic leader member states are the first Germany, United Kingdom as the largest national economies in EU, also there are some less economies, namely Denmark, Netherlands, Austria, Finland and Sweden. In spite that the last five member states are not so large economies, they could realise significant economic growth by the highly level of employment and they could make large influences with Germany and United Kingdom on the increasing the average economic results of all of the EU-25 or EU-27 (see Figure 3.1-1B).

Also it can be mentioned that the EU-25 was completed by joining of Romania and Bulgaria from the south-east Balkan region, which countries could decrease the general average economic results and economic growth of EU-27, in this case the results of EU-27 became less than one of EU-25 and more less than EU-15. So the economic developed gap became more different between EU-15 and EU-27, than between EU-15 and EU-25. The Balkan region of EU is additional to less developing rate of EU-27, than other economic EU member state group. There is no any significant difference between Euro-Area-16 and Euro-Area-17 in field of employment issue, but the *difference between the Euro-Area-16-17* became considerable with the level of employment belonging to the *EU-15*, as same as *between EU-27 and EU-15* concerning the employment rate by gender, age group 15-64 (see Figure 3.1-1B).

In two cases, the basic difficulty is namely that the several most dynamical developing EU member states, namely UK, Denmark and Sweden are not participants in Euro-Area, so they can not increase the average economic result level of this Euro-Area, in spite that the less developed EU member states from Central-East European Region also are not participating in Euro-Area. Ireland and the Mediterranean EU member states, namely Italy, Spain, Portugal, Malta and Greek could be additional to decrease the average economic results of either EU-25, EU-27 or Euro-Area-16-17. In general two other former EU member states, namely France and Belgium made wrong the EU average statistical data with earlier mentioned other EU member states based on unfavourable employment conditions.

Analysing data of employment issue in case of EU-15, the level of employment was very low, namely this was 63% in 2000, and EU-15 could reach only 67% of employment in 2008, before the global economic crisis. Since the beginning of economic crisis of 2008 the fall of employment rate was moderately almost 1,5% till the end of 2010, but this does not mean that further fall of employment will not be able to occur in cease of EU-15 after 2010. Also the favourable employment conditions of EU-15 was not so better than the average employment rate of EU-27, because the difference was not more than 1,5%. Also the average level of employment in EU-15 was not so higher than the world average level during the period of 2000-2010, which was connecting that in general the competitiveness of EU-27 was little less than the other OECD country-groups, foe example, USA and Japan.

In *Figure3.1-1C* there data concerning the employment rate by gender, age group 15-64, eleven highly developed member states in EU, between 2000 - 2010, total, in %, which member states play considerable role either in economic growth or marketing strategy to create conditions of the basic single market in EU. In this figure (Figure 3.1-1C) the overview of employment issue of EU-11 member states

can be clear, how the Denmark and Netherlands can emerge from the other developed most important member states. Also it can be seen that considerable economic gap became between Germany and Italy, and France has a fluctual economic developing level between two member states, as far as from Italy's level up, but as far as Germany's level down in field of employment issue.

Three countries, namely Germany, France and Italy have reached different economic developed levels in point of view of employment. Germany is the first strongest country with United Kingdom of the EU-27, and EU-15, but UK avoided its membership of Euro-Area. *Figure 3.1-1D* shows the data basis concerning employment rate by gender, age group 15-64; and in new member states *in EU-10 between 2000–2010*. The EU-10 new member states concentrated their employment rate at the level of 60%, but some of them could be over 60%, more than half of them less than 60%. In general level of their employment was less by almost 10%, than the highly developed EU-11 member states (see Figure 3.1-1C), where the employment rate concentrated at the level of 70%, of which the higher developed states were more than 70%, for example usually Denmark and Netherlands (Table 3.1-1).

For all of the period of 2000-2010 only two countries/member states, namely *Czech Republic* and *Slovenia* has continuously and stably reached employment level more than 60% in reasons of the more favourable capital supply and more active foreign direct investments than in other EU-10 countries. Czech Republic has continuously reached 65-66% of employment level for all of the period of 2000-2010. The more favourable financial conditions ensured better employment positions for two countries in spite that the global economic crisis. Even these two countries could keep adequate high level of employment after breaking crisis in 2010.

In case of EU-10 new member states *Estonia*, *Latvia* and *Lithuania* had over employment level over 60% during the period of 2003 – 2008, but before this

period their employment level was less than 60%, sometimes expect Estonia was little more than 60%. Since the beginning the global economic crisis of 2008, the beginning of 2009 three Baltic member states or republics declined to 60% and below of this level. There were some economic difficulties of some other countries from EU-10, which had less unfavourable employment level, for example *Hungary* had the deepest employment level for this decade. Hungary could not have employment rate more than 60% since 2000, and even this country could not reach employment level to be closed to this level of 60%, either before the global economic crisis of 2008 or after 2008. This low level of employment was resulted by the low level of economic activities of the Hungarian private companies, foreign capital and corporations, and also the low level of realised investments. Also in Hungary 90% of the Hungarian enterprises is small and medium scale one and their competitiveness is not so efficient (Table 3.1-1).

Only *Bulgaria* from EU-10 new member states had employment rate less than 50% in 2001, but this rate increased to more than 60% during the period of 2007-2009, which employment conditions were the same in *Slovakia*, but here the employment rate did not decline below 50%. *Romania* had also unfavourable employment conditions, because level of employment was only during two years, in 2000 and 2001 more than 60%, and since the beginning of 2002 its employment rate declined down 60%, but somehow closed to this rate, namely between 58-59%, but higher and better position than Hungary had one in the same time. The most significant member state of EU-10 in this Central East European Region was Poland, which country had unfavourable employment rate, as same as this was in Hungary, but in case of *Poland*, in spite that the employment rate did not reached the employment level of 60%, the rate was higher than Hungarian one.

In *Figure 3.1-1E* the employment rate by gender can be analysed, based on the age group 15-64, in selected member states of EU between 2000 - 2010, total, in %. The selected countries, namely the *Poland* and *Hungary* with lowest rate of

employment, Denmark with the best rate, highest level of employment and *Germany* as EU member state with strongest economy. It can be mentioned that as Germany can strengthen its economic growth by through increasing employment rate as somehow as the same the employment rate of the EU-27 can grow. This means that the German economy strongly strengthen and stimulate the economic growth of the EU-27. Naturally significant economic growth of UK, Sweden, Denmark and Netherlands cannot be devaluated. But in 2008 and 2009 the gap between levels of employment in EU-27 and Germany increased but it was so moderate and not significant. In this case of the selected EU member states in Figure 3.1-1E *Denmark* could have almost continuously keep the highly level of its employment for the last decade since the beginning of 2000. The Danish employment rate moderately decreased in 2003 and in 2009-2010, which the last one occurred in consequence of the global economic crisis, but this decline was not resulted in decreasing down of 70% level of employment.

For the period of between 2000-2010 the employment rate in Hungary has been fluctuating over 50%, but less than 60%, by which result Hungary realised the lowest level of employment rate, which also signed the low level rate of the economic growth. For period of between 2000 and 2006 Hungary has realised little higher level of employment than in Poland, but his trend turned to the negative way, when Poland in spite of the economic crisis could increase its employment rate nearest to 50% in 2003 to the level of employment, namely closed to 60%. This almost 8-10% increasing rate of employment could be resulted by the increasing foreign and German direct investments and the active export trend almost to direction into East-European markets. It can be declared that the main EU-member Poland in East and Central European Region remained the low level of employment rate and could not increase Polish employment rate over its 60%.

Based on the data of *Figure 3.1-2* it is clear that the *United States of America* could have remained its leading economic position in field of economic growth and

employment rate for period of 2000-2008, until the beginning of the world economic crisis. The USA employment rate was more than 70%, by which result the USA could increase its employment rate over level of *Japan*'s and *EU-27*'s one. Since the beginning of the global economic crisis Japan has successfully grown its economic production and national GDP more than USA and EU-27, so Japan could get more favourable economic competitiveness. Japan could change its technological development by enough fast trends accompanying with low level of salary and workers' wages, which last one made human resource power be cheaper, than the other world economic competing countries and partners. Also the safe money of human resource power and generally the Japan population concentrated in the Japan bank sector, which stimulated enough strong capital export expansion to create investments abroad with extending wider market position in some parts of the world economy, for example in USA, EU-27, or some small Asian tiger new developing countries, like South Korea.

Also it can be emphasized that EU-15, as highest developed EU member state group could not remain their economic advantages against Japan and USA, which can be proved by the decreasing employment rate in this EU region. This situation could be resulted by the unfavourable economic conditions of EU, namely they could not strengthen their competitiveness and comparative advantages. The employment rate of Japan was higher than the level of EU-15 by about 5%, and USA's one by several percents.

Following the *Figure 3.1-3*, the employment rate by gender in USA and Japan in case of age group 15-64, between 2000 – 2010, in total in %, shows how Japan has continuously increased its employment rate by the help of favourable economic conditions mentioned above since the beginning of 2000. It is very clear that Japan could keep its economic growth by remaining highly employment rate against the USA in spite of the world economic crisis. In the USA the employment rate was 74% in 2000, which decreased to the 71% level of employment in 2008 at the

beginning of the economic crisis. This decrease was not so significant, namely about 3%. Between 2002-2006 the decrease of the employment rate decreased by a very moderately, also by 3%. But since 2008 the decrease has been by 4% only during three years, the decrease almost was considerable by 7% by the end of 2010 in the case of the same age group of 15-64. The deadline has been resulted by economic recession from 2008, and also the migration of population out of USA, because this was more intensive, which came mostly from Latin America and Latin America. In USA the unemployment rate has increased since 2007.

Japan has a moderate fluctuating rate of employment since 2000, because between 2000 -2006 the employment rate was at level of 69-70%, and 2007 and 2008 the employment rate increased by moderate growth to level of 71%. After the crisis the recession of 2008 caused a moderate decline, which was only 1% to the level of 70% employment. *Germany* had higher employment level than Japan's one by about 1%, and than USA's one by about 4%. In fact this difference is not considerable between Germany and USA, but this show how Germany could remain its more competitiveness against USA and Japan (see Table 3.1-1 and Figure 3.1-3).

The *Table 3.1-2* shows well how much employment rate is difference between two EU member state groups, even before the enlargement with new EU -12 and after that. In general before the enlargement the difference was higher between two groups, when the EU-15 had higher employment rate based on the favourable economic conditions. After the enlargement the free flow of employees stimulated to decrease the difference between two EU member state groups in field of employment rate. The Table 3.1-3 and Table 3.1-4 show the employment correlation among EU-27 states - without data of Iceland – during different years, in this period how much difference was in the employment rate of the each EU member state was comparably to the other one. The difference of the employment rate is measured between -1 and 0 and +1. From this analysing approach it can be

declared that differences have been very fluctual among them for the period of 2001-2011 (also see the Table 3.1-2, Table 3.1-3, Table 3.1-4). For example the developing employment rate is very far between Ireland and trend of Germany -0,340 value, also between Germany and Denmark -0,23 values. Employment rate of Spain is much closed to one of Italy, Latvia, Lithuania, also not far from one of France and Cyprus. In general the difference of employment rate is marginal and it does not show the real economic developed level of each EU member state. Sometimes the less developed economy of Bulgaria has implemented considerable economic growth for the analysed period of 2001-2011, in spite that this country has a considerable backwardness comparably to Germany (Table-3.1-3, Table 3.1-4).

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Table 3.1-1: Employment rate by gender, age group 15-64, between 2000 2010, Total, in %

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
EU (27 countries)	62,2	62,6	62,4	62,6	63	63,5	64,5	65,4	65,8	64,5	64,1
EU (25 countries)	62,4	62,8	62,8	63	63,4	64	64,8	65,8	66,1	64,8	64,5
EU (15 countries)	63,4	64,1	64,2	64,5	64,9	65,4	66,2	66,9	67,1	65,8	65,4
Euro area (17 countries)	61,4	62,1	62,3	62,6	63,1	63,7	64,7	65,6	65,9	64,5	64,1
Euro area (16 countries)	61,4	62,1	62,3	62,6	63,1	63,7	64,6	65,6	65,8	64,5	64,2
Belgium	60,5	59,9	59,9	59,6	60,3	61,1	61	62	62,4	61,6	62
Bulgaria	50,4	49,7	50,6	52,5	54,2	55,8	58,6	61,7	64	62,6	59,7
Czech Republic	65	65	65,4	64,7	64,2	64,8	65,3	66,1	66,6	65,4	65
Denmark	76,3	76,2	75,9	75,1	75,7	75,9	77,4	77,1	77,9	75,7	73,4
Germany	65,6	65,8	65,4	65	65	66	67,5	69,4	70,1	70,3	71,1
Estonia	60,4	61	62	62,9	63	64,4	68,1	69,4	69,8	63,5	61
Ireland	65,2	65,8	65,5	65,5	66,3	67,6	68,7	69,2	67,6	61,8	60
Greece	56,5	56,3	57,5	58,7	59,4	60,1	61	61,4	61,9	61,2	59,6
Spain	56,3	57,8	58,5	59,8	61,1	63,3	64,8	65,6	64,3	59,8	58,6
France	62,1	62,8	63	64	63,8	63,7	63,6	64,3	64,8	64	63,8
Italy	53,7	54,8	55,5	56,1	57,6	57,6	58,4	58,7	58,7	57,5	56,9
Cyprus	65,7	67,8	68,6	69,2	68,9	68,5	69,6	71	70,9	69,9	69,7
Latvia	57,5	58,6	60,4	61,8	62,3	63,3	66,3	68,3	68,6	60,9	59,3
Lithuania	59,1	57,5	59,9	61,1	61,2	62,6	63,6	64,9	64,3	60,1	57,8
Luxembourg	62,7	63,1	63,4	62,2	62,5	63,6	63,6	64,2	63,4	65,2	65,2
Hungary	56,3	56,2	56,2	57	56,8	56,9	57,3	57,3	56,7	55,4	55,4
Malta	54,2	54,3	54,4	54,2	54	53,9	53,6	54,6	55,3	55	56,1
Netherlands	72,9	74,1	74,4	73,6	73,1	73,2	74,3	76	77,2	77	74,7
Austria	68,5	68,5	68,7	68,9	67,8	68,6	70,2	71,4	72,1	71,6	71,7
Poland	55	53,4	51,5	51,2	51,7	52,8	54,5	57	59,2	59,3	59,3
Portugal	68,4	69	68,8	68,1	67,8	67,5	67,9	67,8	68,2	66,3	65,6
Romania	63	62,4	57,6	57,6	57,7	57,6	58,8	58,8	59	58,6	58,8

Table 3.1-1: Employment rate by gender, age group 15-64 *(Continued)*
Total, in %

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Slovenia	62,8	63,8	63,4	62,6	65,3	66	66,6	67,8	68,6	67,5	66,2
Slovakia	56,8	56,8	56,8	57,7	57	57,7	59,4	60,7	62,3	60,2	58,8
Finland	67,2	68,1	68,1	67,7	67,6	68,4	69,3	70,3	71,1	68,7	68,1
Sweden	73	74	73,6	72,9	72,1	72,5	73,1	74,2	74,3	72,2	72,7
United Kingdom	71,2	71,4	71,4	71,5	71,7	71,7	71,6	71,5	71,5	69,9	69,5

:=Not available b=Break in series i=See explanatory text

Source: Eurostat Structural Indicators, Employment
Employment rate (total and by gender)
Employed persons aged 15-64 (respectively 55-64) as a share of the total population aged 15-64 (respectively 55-64): total, female and male population

Data lack comparability due to changes in certain survey characteristics:
- between 1999 and 2000 for the UK
- between 2000 and 2001 for BG
- between 2001 and 2002 for RO
- between 2003 and 2004 for IT and AT.
- between 2004 and 2005 for DE, ES and SE.

For more details see. EU Labour Force Survey – Comparability of results.
FR – data do not cover the overseas departments (DOM)
JP, US – data source: national Labour Force Survey (source: OECD)

Table 3.1-2: Group Statistics in case of EU-15 and EU-12

	EU_12_15	N	Mean	Std. Deviation	Std. Error Mean
Y2001	EU15	15	65,340	6,7052	1,7313
	EU12	12	58,850	4,6750	1,3496
Y2002	EU15	15	65,840	6,6804	1,7249
	EU12	12	58,875	5,2819	1,5248
Y2003	EU15	15	65,973	6,3659	1,6437
	EU12	12	58,900	5,4501	1,5733
Y2004	EU15	15	65,913	5,8823	1,5188
	EU12	12	59,375	5,3005	1,5301
Y2005	EU15	15	66,120	5,4237	1,4004
	EU12	12	59,692	5,2448	1,5140
Y2006	EU15	15	66,720	5,2226	1,3485
	EU12	12	60,358	5,1708	1,4927
Y2007	EU15	15	67,493	5,4088	1,3965
	EU12	12	61,808	5,4363	1,5693
Y2008	EU15	15	68,207	5,4582	1,4093
	EU12	12	63,133	5,5001	1,5878
Y2009	EU15	15	68,367	5,7555	1,4861
	EU12	12	63,775	5,3063	1,5318
Y2010	EU15	15	66,853	5,9186	1,5282
	EU12	12	61,533	4,5095	1,3018

Y2011	EU15	15	66,193	5,8925	1,5214
	EU12	12	60,592	4,2586	1,2293

New variable names:

CASE_LBL EU__27_countries_ EU__25_countries_ EU__15_countries_
Euro_area__17_countries_ Euro_area__16_countries_ Belgium Bulgaria
Czech_Republic Denmark Germany Estonia Ireland Greece Spain France Italy
Cyprus Latvia Lithuania Luxembourg Hungary Malta Netherlands Austria Poland
Portugal Romania Slovenia Slovakia Finland Sweden United_Kingdom

Source: Eurostat Structural Indicators, Employment Employment rate (total and by gender)
Employed persons aged 15-64 (respectively 55-64) as a share of the total population aged 15-64 (respectively 55-64): total, female and male population

Table 3.1-3: Employment Correlation in EU-27 (Belgium- Lithuania)

EU-27		Be	Bu	Cz	D	G	Est	Ire	Gr	Sp	F	I	Cyp	Lat	Lith
Be	P. cor	1	.917**	.663*	,189	.908**	,600	-,053	.775**	,541	.613*	.674*	.633*	,556	,440
	Sig.		,000	,026	,578	,000	,051	,876	,005	,086	,045	,023	,037	,075	,176
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Bu	P. cor	.917**	1	.634*	,230	.882**	.716*	-,011	.935**	.665*	.811**	.840**	.825**	.684*	,566
	Sig.	,000		,036	,496	,000	,013	,975	,000	,026	,002	,001	,002	,020	,069
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Cz	P. cor	.663*	.634*	1	.612*	.627*	.714*	,285	,512	,484	,453	,422	,566	.639*	,527
	Sig.	,026	,036		,045	,039	,014	,395	,108	,132	,161	,196	,069	,034	,096
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
D	P. cor	,189	,230	.612*	1	-,023	.733*	.814**	,310	,587	,156	,327	,180	.667*	.697*
	Sig.	,578	,496	,045		,948	,010	,002	,354	,058	,646	,326	,597	,025	,017
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
G	P. cor	.908**	.882**	.627*	-,023	1	,419	-,340	.674*	,322	,570	,547	.666*	,359	,180
	Sig.	,000	,000	,039	,948		,200	,306	,023	,334	,067	,082	,025	,278	,596
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Est	P. cor	,600	.716*	.714*	.733*	,419	1	.670*	.816**	.941**	.716*	.834**	.741**	.986**	.936**
	Sig.	,051	,013	,014	,010	,200		,024	,002	,000	,013	,001	,009	,000	,000
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Ire	P. cor	-,053	-,011	,285	.814**	-,340	.670*	1	,209	.681*	,147	,338	,132	.683*	.764**
	Sig.	,876	,975	,395	,002	,306	,024		,538	,021	,667	,309	,699	,020	,006
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Gr	P. cor	.775**	.935**	,512	,310	.674*	.816**	,209	1	.835**	.879**	.956**	.857**	.818**	.755**
	Sig.	,005	,000	,108	,354	,023	,002	,538		,001	,000	,000	,001	,002	,007
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Sp	P. cor	,541	.665*	,484	,587	,322	.941**	.681*	.835**	1	.729*	.906**	.729*	.962**	.934**
	Sig.	,086	,026	,132	,058	,334	,000	,021	,001		,011	,000	,011	,000	,000
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
F	P. cor	.613*	.811**	,453	,156	,570	.716*	,147	.879**	.729*	1	.881**	.931**	.767**	.649*
	Sig.	,045	,002	,161	,646	,067	,013	,667	,000	,011		,000	,000	,006	,031
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11

It	P. cor	.674*	.840**	,422	,327	,547	.834**	,338	.956**	.906**	.881**	1	.879**	.866**	.781**
	Sig.	,023	,001	,196	,326	,082	,001	,309	,000	,000	,000		,000	,001	,005
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Cyp	P. cor	.633*	.825**	,566	,180	.666*	.741**	,132	.857**	.729*	.931**	.879**	1	.770**	.605*
	Sig.	,037	,002	,069	,597	,025	,009	,699	,001	,011	,000	,000		,006	,049
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Lat	P. cor	,556	.684*	.639*	.667*	,359	.986**	.683*	.818**	.962**	.767**	.866**	.770**	1	.952**
	Sig.	,075	,020	,034	,025	,278	,000	,020	,002	,000	,006	,001	,006		,000
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11

EU-27		Be	Bu	Cz	D	G	Est	Ire	Gr	Sp	F	I	Cyp	Lat	Lith
Lith	P. cor	,440	,566	,527	.697*	,180	.936**	.764**	.755**	.934**	.649*	.781**	.605*	.952**	1
	Sig.	,176	,069	,096	,017	,596	,000	,006	,007	,000	,031	,005	,049	,000	
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Lux	P. cor	.709*	.668*	,354	-,259	.851**	,128	-,495	,485	,135	,304	,381	,470	,070	-,061
	Sig.	,015	,025	,286	,443	,001	,708	,122	,131	,693	,364	,248	,144	,837	,859
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Hu	P. cor	-,122	-,024	,093	.606*	-,382	.619*	.924**	,243	.683*	,232	,373	,173	.667*	.765**
	Sig.	,721	,945	,786	,048	,246	,042	,000	,472	,021	,491	,258	,612	,025	,006
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Ma	P. cor	.623*	,517	,395	-,414	.791**	-,045	-.663*	,245	-,157	,363	,132	,406	-,057	-,255
	Sig.	,041	,104	,230	,205	,004	,895	,026	,467	,646	,273	,698	,216	,867	,448
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Ne	P. cor	.715*	.811**	.827**	,326	.813**	,578	-,083	.662*	,392	.646*	,548	.745**	,512	,350
	Sig.	,013	,002	,002	,327	,002	,062	,807	,026	,233	,032	,081	,009	,107	,292
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Aus	P. cor	.878**	.902**	.745**	,113	.969**	,552	-,208	.726*	,415	.647*	,590	.743**	,490	,321
	Sig.	,000	,000	,009	,741	,000	,078	,539	,011	,205	,032	,056	,009	,126	,336
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Pl	P. cor	.889**	.809**	.625*	,043	.956**	,331	-,366	,553	,185	,415	,384	,472	,244	,094
	Sig.	,000	,003	,040	,900	,000	,320	,269	,078	,587	,204	,244	,143	,470	,783
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Por	P. cor	-,585	-,599	,079	,586	-.694*	,056	.658*	-,490	-,046	-,386	-,379	-,377	,053	,122
	Sig.	,059	,052	,817	,058	,018	,871	,028	,126	,893	,240	,250	,253	,878	,720

	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Ro	P. cor	-,113	-,346	,043	,171	-,083	-,323	-,061	-,567	-,482	-.655*	-.632*	-.619*	-,432	-,443
	Sig.	,742	,297	,900	,614	,809	,333	,858	,069	,133	,029	,037	,042	,184	,172
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Slo Ven	P. cor	.902**	.948**	.626*	,363	.802**	.759**	,146	.906**	.742**	.753**	.874**	.786**	.730*	.604*
	Sig.	,000	,000	,039	,272	,003	,007	,669	,000	,009	,007	,000	,004	,011	,049
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Slo Vak	P. cor	.855**	.939**	.822**	,446	.820**	.817**	,154	.863**	.678*	.788**	.761**	.811**	.767**	.641*
	Sig.	,001	,000	,002	,169	,002	,002	,651	,001	,022	,004	,006	,002	,006	,034
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Fi	P. cor	.736**	.784**	.891**	.661*	.628*	.919**	,460	.764**	.794**	.713*	.751**	.778**	.882**	.751**
	Sig.	,010	,004	,000	,027	,038	,000	,154	,006	,004	,014	,008	,005	,000	,008
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Sw	P. cor	,172	,076	.744**	,574	,152	,455	,474	-,016	,254	,094	,030	,239	,414	,285
	Sig.	,612	,825	,009	,065	,655	,160	,141	,964	,452	,784	,930	,479	,206	,395
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
UK	P. cor	-,406	-,358	-,006	.645*	-.672*	,358	.906**	-,105	,392	-,052	,053	-,134	,406	,523
	Sig.	,216	,280	,985	,032	,023	,279	,000	,758	,234	,879	,878	,694	,216	,099
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11
EU-27		Be	Bu	Cz	D	G	Est	Ire	Gr	Sp	F	I	Cyp	Lat	Lith

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

P. cor. = Person correlation, Sig. = Sig. (2-tailed), N = Number of the years, Value between: -1 < 0 < 1

Source: Eurostat Structural Indicators, Employment, Employment rate (total and by gender)
Employed persons aged 15-64 (respectively 55-64) as a share of the total population aged 15-64 (respectively 55-64): total, female and male population

Table 3.1- 4: Employment Correlation in EU-27 (Luxemburg - UK)

EU-27		Lux	Hu	Ma	Ne	Au	Pl	Po	Ro	Sloven	Slovak	F	Sw	UK
Be	P. cor	.709*	-,122	.623*	.715*	.878**	.889**	-,585	-,113	.902**	.855**	.736**	,172	-,406
	Sig.	,015	,721	,041	,013	,000	,000	,059	,742	,000	,001	,010	,612	,216
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Bu	P. cor	.668*	-,024	,517	.811**	.902**	.809**	-,599	-,346	.948**	.939**	.784**	,076	-,358
	Sig.	,025	,945	,104	,002	,000	,003	,052	,297	,000	,000	,004	,825	,280
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Cz	P. cor	,354	,093	,395	.827**	.745**	.625*	,079	,043	.626*	.822**	.891**	.744**	-,006
	Sig.	,286	,786	,230	,002	,009	,040	,817	,900	,039	,002	,000	,009	,985
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
D	P. cor	-,259	.606*	-,414	,326	,113	,043	,586	,171	,363	,446	.661*	,574	.645*
	Sig.	,443	,048	,205	,327	,741	,900	,058	,614	,272	,169	,027	,065	,032
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
G	P. cor	.851**	-,382	.791**	.813**	.969**	.956**	-.694*	-,083	.802**	.820**	.628*	,152	-.672*
	Sig.	,001	,246	,004	,002	,000	,000	,018	,809	,003	,002	,038	,655	,023
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Est	P. cor	,128	.619*	-,045	,578	,552	,331	,056	-,323	.759**	.817**	.919**	,455	,358
	Sig.	,708	,042	,895	,062	,078	,320	,871	,333	,007	,002	,000	,160	,279
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Ire	P. cor	-,495	.924**	-.663*	-,083	-,208	-,366	.658*	-,061	,146	,154	,460	,474	.906**
	Sig.	,122	,000	,026	,807	,539	,269	,028	,858	,669	,651	,154	,141	,000
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Gr	P. cor	,485	,243	,245	.662*	.726*	,553	-,490	-,567	.906**	.863**	.764**	-,016	-,105
	Sig.	,131	,472	,467	,026	,011	,078	,126	,069	,000	,001	,006	,964	,758
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Sp	P. cor	,135	.683*	-,157	,392	,415	,185	-,046	-,482	.742**	.678*	.794**	,254	,392
	Sig.	,693	,021	,646	,233	,205	,587	,893	,133	,009	,022	,004	,452	,234
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
F	P. cor	,304	,232	,363	.646*	.647*	,415	-,386	-.655*	.753**	.788**	.713*	,094	-,052
	Sig.	,364	,491	,273	,032	,032	,204	,240	,029	,007	,004	,014	,784	,879
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
It	P. cor	,381	,373	,132	,548	,590	,384	-,379	-.632*	.874**	.761**	.751**	,030	,053
	Sig.	,248	,258	,698	,081	,056	,244	,250	,037	,000	,006	,008	,930	,878
	N	11	11	11	11	11	11	11	11	11	11	11	11	11

Cyp	P. cor	,470	,173	,406	.745**	.743**	,472	-,377	-.619*	.786**	.811**	.778**	,239	-,134
	Sig.	,144	,612	,216	,009	,009	,143	,253	,042	,004	,002	,005	,479	,694
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Lat	P. cor	,070	.667*	-,057	,512	,490	,244	,053	-,432	.730*	.767**	.882**	,414	,406
	Sig.	,837	,025	,867	,107	,126	,470	,878	,184	,011	,006	,000	,206	,216
	N	11	11	11	11	11	11	11	11	11	11	11	11	11

EU-27		Lux	Hu	Ma	Ne	Au	Pl	Po	Ro	Sloven	Slovak	F	Sw	UK
Lith	P. cor	-,061	.765**	-,255	,350	,321	,094	,122	-,443	.604*	.641*	.751**	,285	,523
	Sig.	,859	,006	,448	,292	,336	,783	,720	,172	,049	,034	,008	,395	,099
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Lux	P. cor	1	-,564	.655*	.613*	.753**	.771**	-.778**	-,144	.631*	,500	,327	-,093	-.786**
	Sig.		,071	,029	,045	,007	,005	,005	,673	,037	,117	,326	,785	,004
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Hu	P. cor	-,564	1	-.666*	-,228	-,239	-,449	,515	-,216	,053	,098	,328	,290	.862**
	Sig.	,071		,025	,500	,479	,166	,105	,524	,877	,774	,325	,387	,001
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Ma	P. cor	.655*	-.666*	1	,588	.727*	.774**	-.618*	-,015	,392	,467	,264	,125	-.778**
	Sig.	,029	,025		,057	,011	,005	,043	,966	,233	,148	,432	,714	,005
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Ne	P. cor	.613*	-,228	,588	1	.876**	.777**	-,295	-,144	.762**	.881**	.790**	,392	-,362
	Sig.	,045	,500	,057		,000	,005	,379	,673	,006	,000	,004	,233	,273
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Aus	P. cor	.753**	-,239	.727*	.876**	1	.913**	-,571	-,135	.793**	.904**	.736**	,276	-,550
	Sig.	,007	,479	,011	,000		,000	,066	,693	,004	,000	,010	,412	,080
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Pl	P. cor	.771**	-,449	.774**	.777**	.913**	1	-.619*	,153	.731*	.776**	,561	,153	-.671*
	Sig.	,005	,166	,005	,005	,000		,042	,653	,011	,005	,073	,653	,024
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Por	P. cor	-.778**	,515	-.618*	-,295	-,571	-.619*	1	,323	-,470	-,334	-,011	,555	.823**
	Sig.	,005	,105	,043	,379	,066	,042		,333	,144	,316	,975	,077	,002
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Ro	P. cor	-,144	-,216	-,015	-,144	-,135	,153	,323	1	-,296	-,211	-,187	,311	-,045
	Sig.	,673	,524	,966	,673	,693	,653	,333		,377	,534	,583	,351	,897

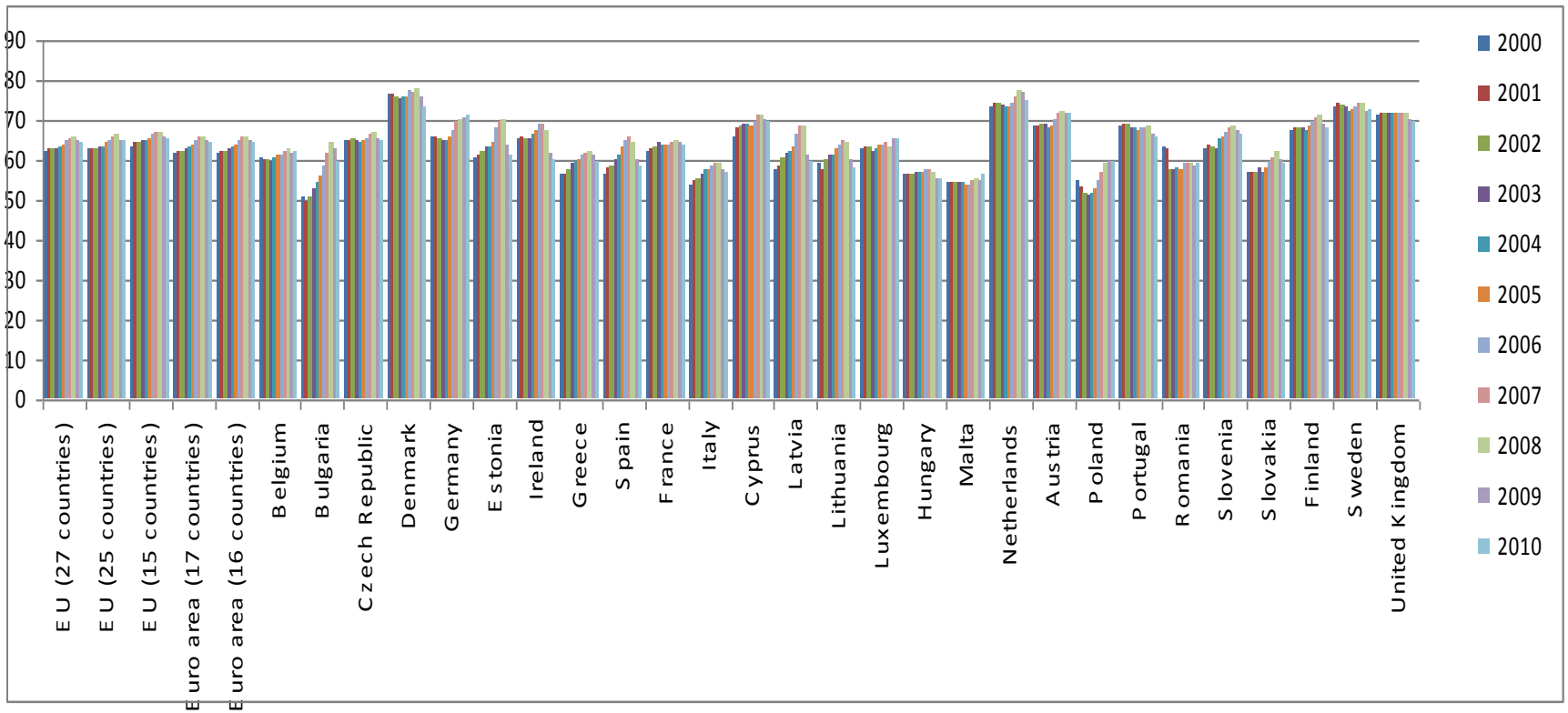
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Slo Ven	P. cor	.631*	,053	,392	.762**	.793**	.731*	-,470	-,296	1	.883**	.828**	,143	-,205
	Sig.	,037	,877	,233	,006	,004	,011	,144	,377		,000	,002	,675	,546
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Slo Vak	P. cor	,500	,098	,467	.881**	.904**	.776**	-,334	-,211	.883**	1	.910**	,358	-,186
	Sig.	,117	,774	,148	,000	,000	,005	,316	,534	,000		,000	,280	,584
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Fi	P. cor	,327	,328	,264	.790**	.736**	,561	-,011	-,187	.828**	.910**	1	.616*	,134
	Sig.	,326	,325	,432	,004	,010	,073	,975	,583	,002	,000		,043	,695
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
Sw	P. cor	-,093	,290	,125	,392	,276	,153	,555	,311	,143	,358	.616*	1	,339
	Sig.	,785	,387	,714	,233	,412	,653	,077	,351	,675	,280	,043		,308
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
UK	P. cor	-.786**	.862**	-.778**	-,362	-,550	-.671*	.823**	-,045	-,205	-,186	,134	,339	1
	Sig.	,004	,001	,005	,273	,080	,024	,002	,897	,546	,584	,695	,308	
	N	11	11	11	11	11	11	11	11	11	11	11	11	11
EU-27		Lux	Hu	Ma	Ne	Au	Pl	Po	Ro	Sloven	Slovak	F	Sw	UK

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

P. cor. = Person correlation, Sig. = Sig. (2-tailed), N = Number of the years, Value between: $-1 < 0 < 1$

Source: Eurostat Structural Indicators, Employment, Employment rate (total and by gender)
Employed persons aged 15-64 (respectively 55-64) as a share of the total population aged 15-64 (respectively 55-64): total, female and male population

Figure 3.1-1A: Employment rate by gender, age group 15-64 in EU, between 2000- 2010, Total in %



Source: Eurostat Structural Indicators, Employment rate (total and by gender)

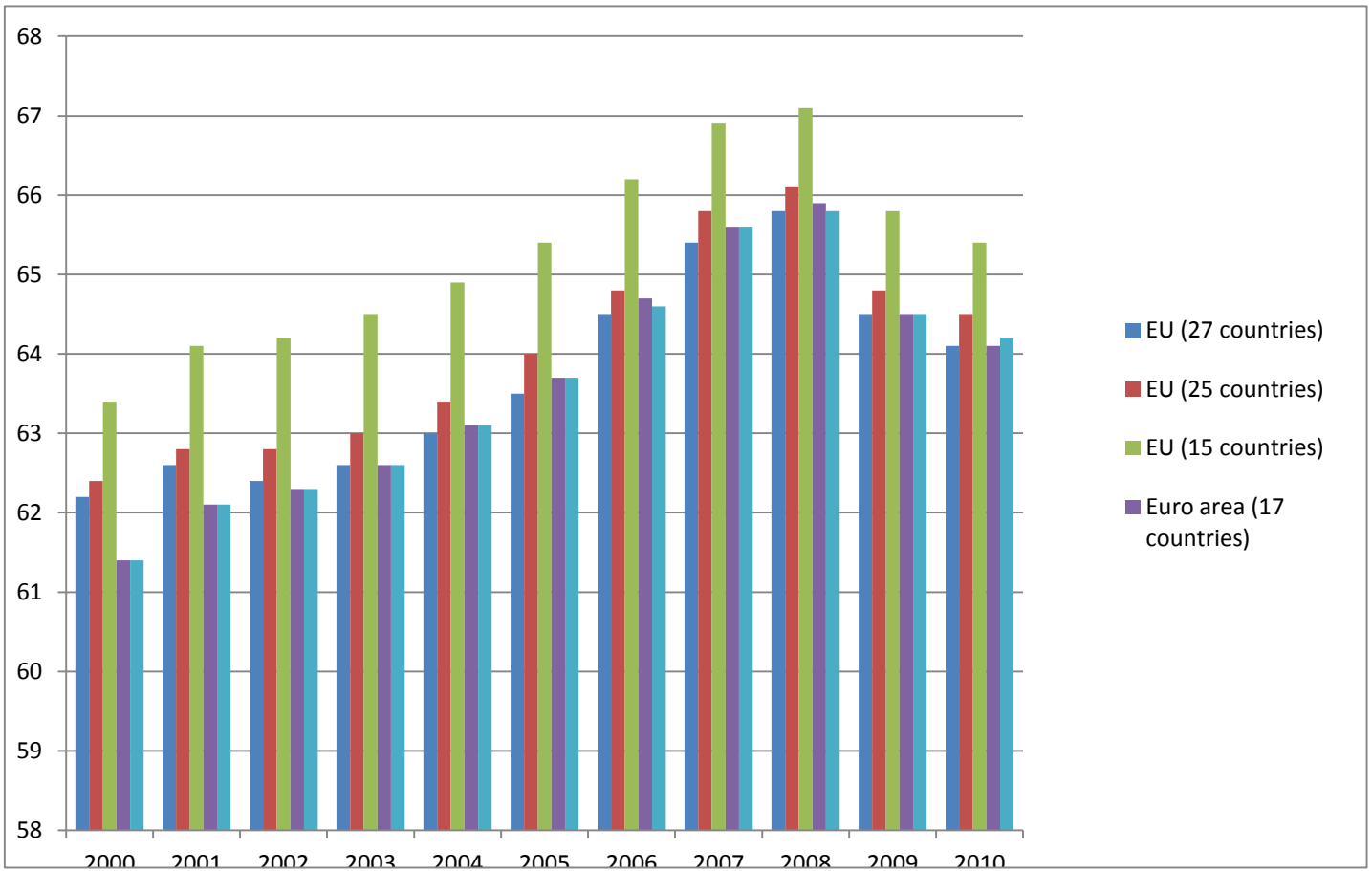
Eurostat Structural Indicators, Employment, 2010

Employed persons aged 15-64 (respectively 55-64) as a share of the total population aged 15-64 (respectively 55-64): total, female and male population

Data lack comparability due to changes in certain survey characteristics:

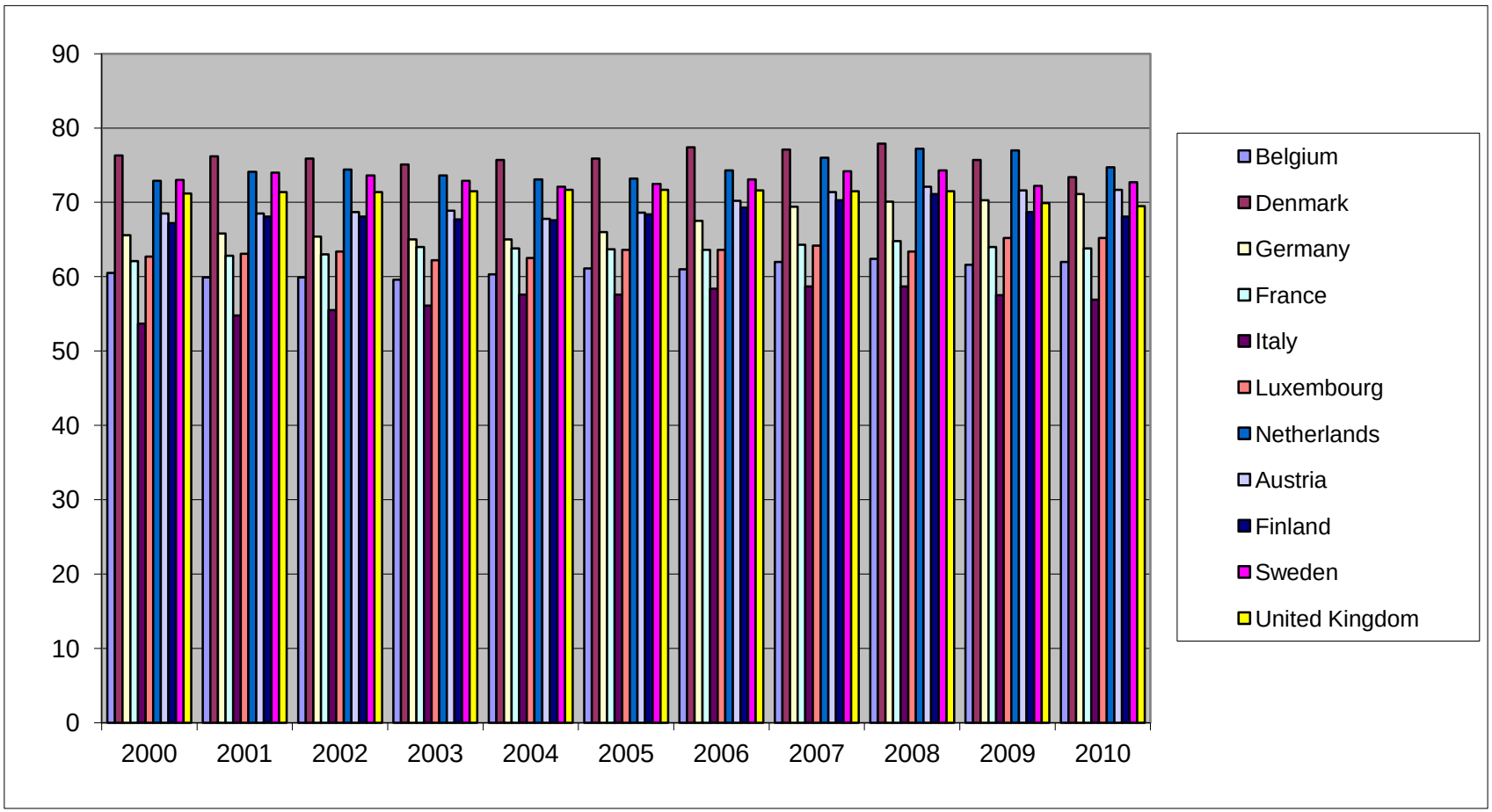
- between 1999 and 2000 for the UK; - between 2000 and 2001 for BG; - between 2001 and 2002 for RO, - between 2003 and 2004 for IT and AT; - between 2004 and 2005 for DE, ES and SE. For more details see. EU Labour Force Survey – Comparability of results. FR – data do not cover the overseas departments (DOM) JP, US – data source: national Labour Force Survey (source: OECD)

Figure 3.1-1B: Employment rate by gender, age group 15-64, Total in %



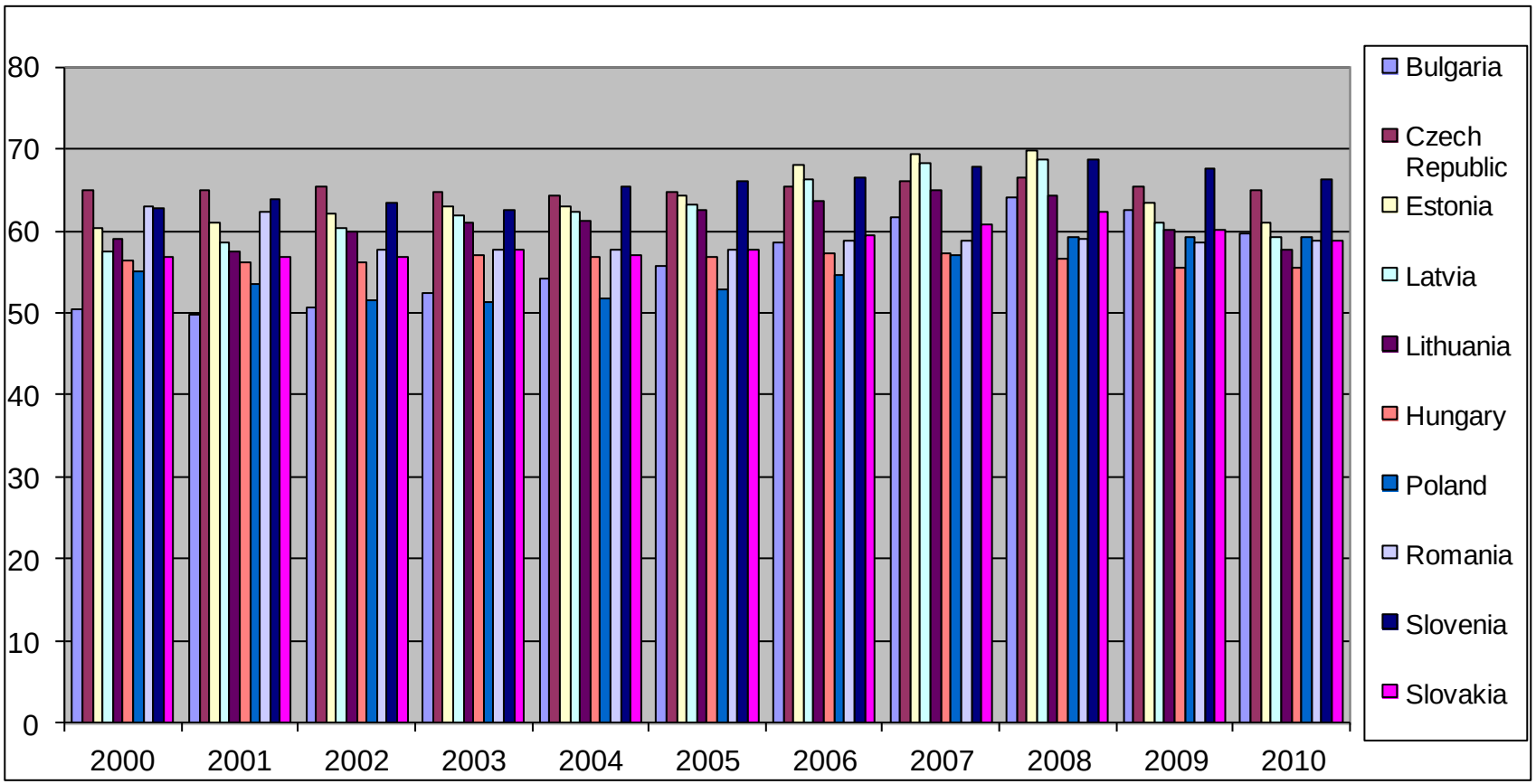
Source: Eurostat Structural Indicators, Employment rate (total and by gender), Eurostat Structural Indicators, Employment, 2010.
Employed persons aged 15-64 (respectively 55-64) as a share of the total population aged 15-64 (respectively 55-64): total, female and male population

Figure 3.1-1C: Employment rate by gender, age group 15-64, highly developed member states in EU, between 2000 - 2010, Total, in



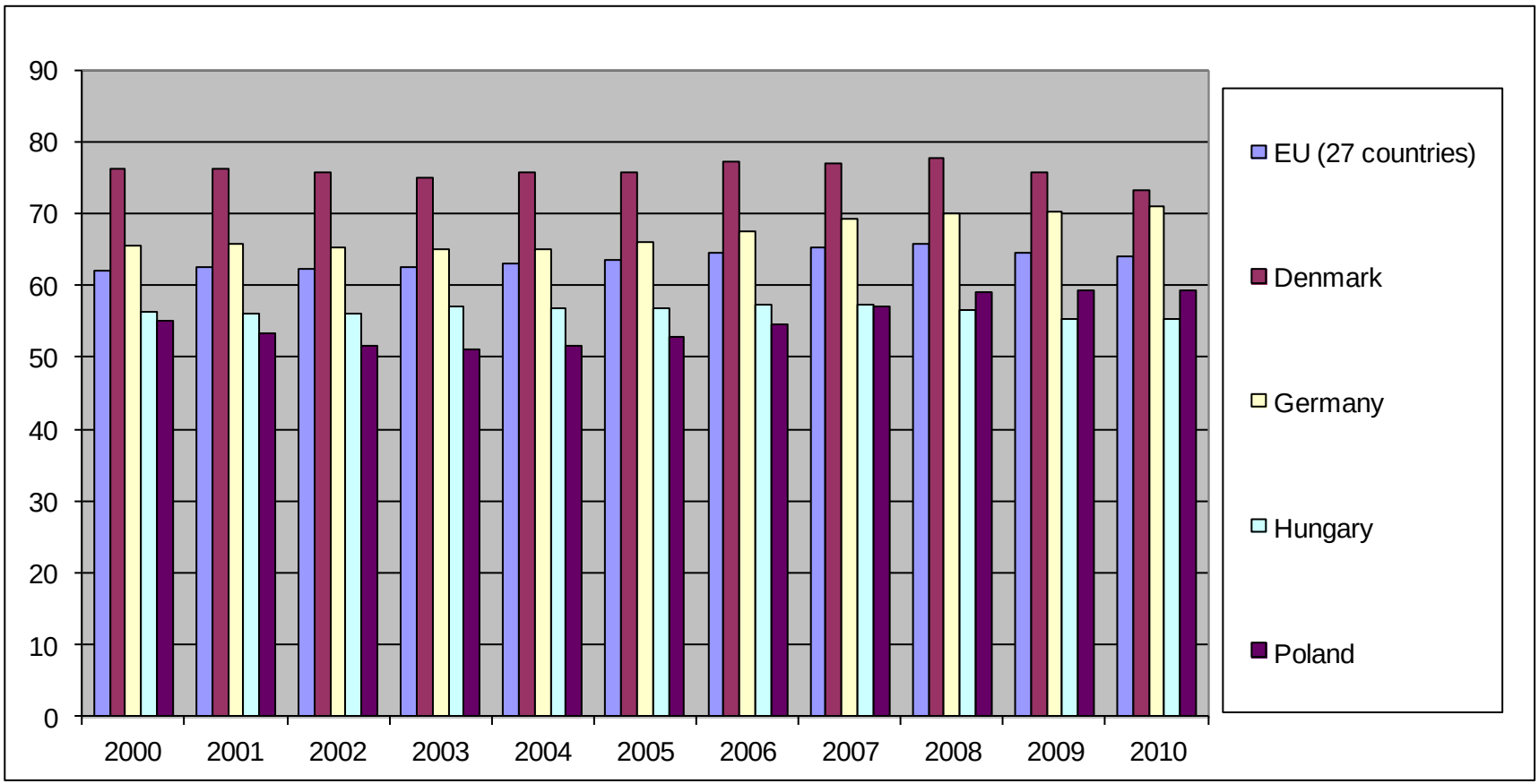
Source: Eurostat Structural Indicators, Employment rate (total and by gender), Eurostat Structural Indicators, Employment, 2010

Figure 3.1-1D: Employment rate by gender, age group 15-64; new member states in EU-10 between 2000 - 2010, Total, in %



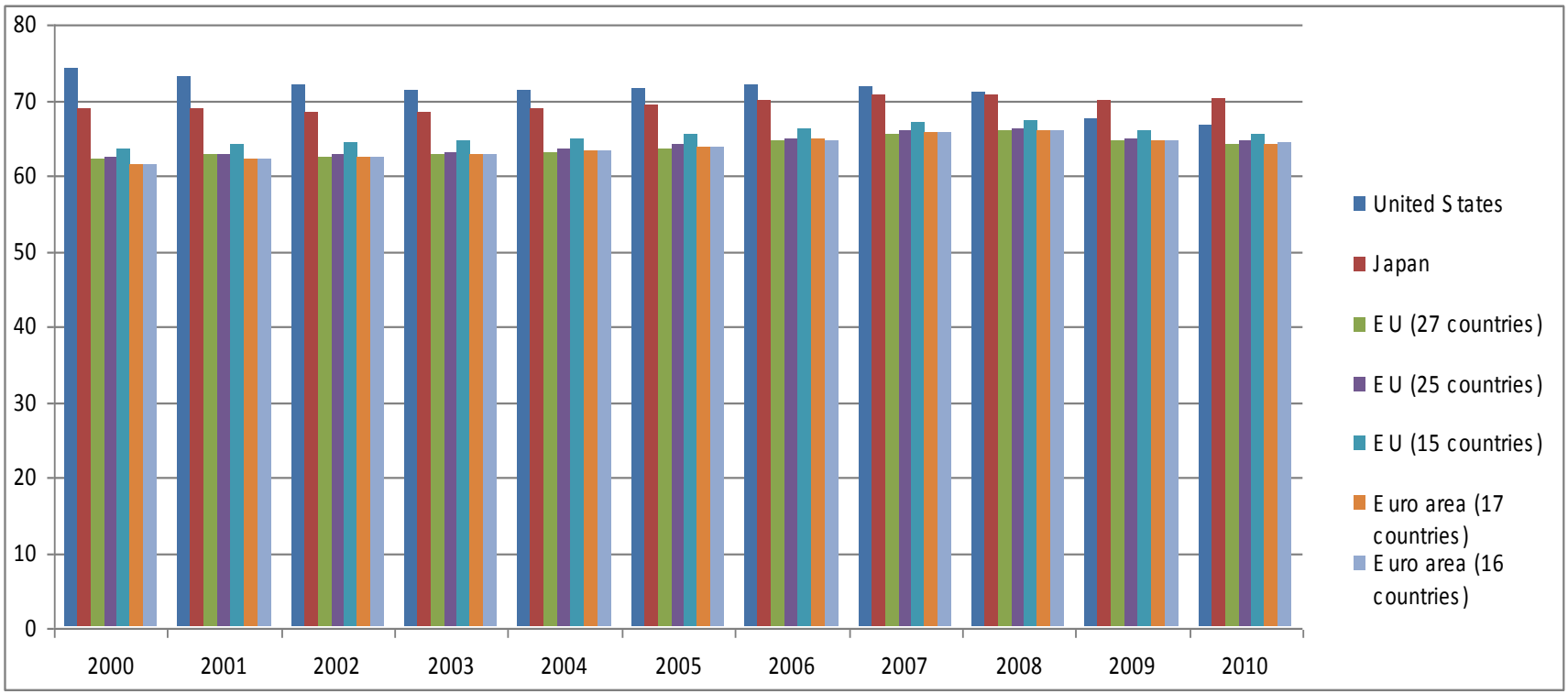
Source: Eurostat Structural Indicators, Employment rate (total and by gender), Eurostat Structural Indicators, Employment, 2010

Figure 3.1-1E: Employment rate by gender, age group 15-64, selected member states in EU between 2000 - 2010, Total, in %



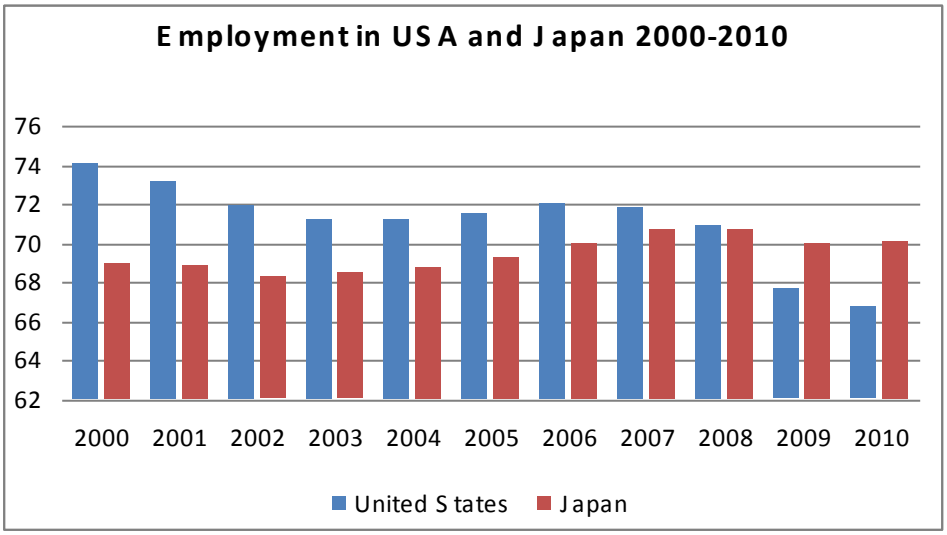
Source: Eurostat Structural Indicators, Employment rate (total and by gender)
Eurostat Structural Indicators, Employment, 2010

Figure 3.1-2: Employment rate by gender, age group 15-64, Total in %



Source: Eurostat Structural Indicators, Employment rate (total and by gender)
Eurostat Structural Indicators, Employment, 2010
Employed persons aged 15-64 (respectively 55-64) as a share of the total population aged 15-64 (respectively 55-64): total, female and male population

Figure 3.1-3: Employment rate by gender, age group 15-64, between 2000 – 2010, Total in %



Source: Eurostat Structural Indicators, Employment rate (total and by gender)
Eurostat Structural Indicators, Employment, 2010
Employed persons aged 15-64 (respectively 55-64) as a share of the total population aged 15-64 (respectively 55-64): total, female and male population

http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_150440.pdf

3.2 The people at-risk-of-poverty or social exclusion in the world economy

There is the *Figure 3.2-1*, which analyses the *people at-risk-of-poverty or social exclusion*, % and 1000 persons, % of total population, during the period of between 2004–2010. This kind of statistical data can show the economic and social developed level of society and in general the each country.

The difference concerning the people at-risk-of-poverty or social exclusion was about 4,1% in 2005 and about 1,8% in 2010 between levels of EU-27 and EU-15. In general there were only several EU member states, which had large gap in field of people at-risk-of-poverty or social exclusion in both of two EU member state groups. The highly developed member states have about 15-20% share of a people at-risk-poverty. This data shows that the risk of poverty in EU-27 decreased by about half of 2005 level until the end of 2010, and their average level of this people risk decreased in consequence of improving some data of the worst member states in this field early in 2005, for example in Bulgaria, Poland, Slovakia, Latvia and Lithuania.

In Bulgaria the share of people at-risk-of-poverty was 62% from 2006 to 42% in 2010. The Bulgarian risk poverty was the worst in all of the EU-27, and during this period the most declines was here by 20%, which was very considerable result according to the short period. The second worst share of at-risk-poverty was Poland by 45% in 2005 and decreased to 28% in 2010 by almost 17%, also Slovakia was in the third worst share of at-risk-of-poverty, where the decline in this field also was considerably by 21% (see Table 3.2-1 and Figure 3.2-1).

In the Baltic area of EU the people at-risk-of-poverty was unfavourable level, namely this was 46% in 2005, which decreased by 8% to 38% in 2010 in Latvia, and in Lithuania this share was 41% in 2005, which decreased by also 8% to 33%

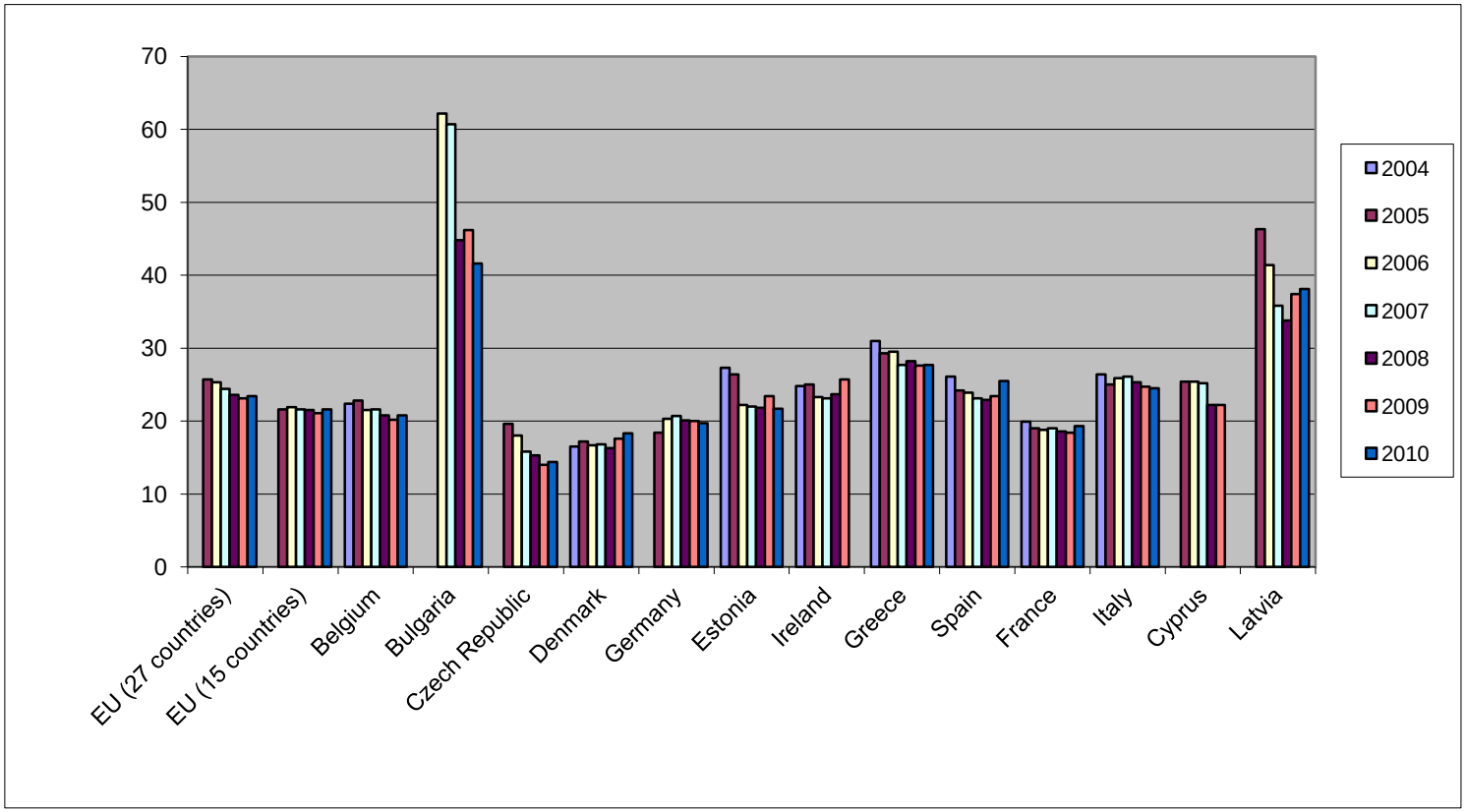
in 2010. This development trend shows that the share was considerable in 2005 and also by the end of 2010 in two countries, because this share was higher than the average level of risk-of-poverty in EU-27, which had 23, 4%, and EU-15 had 21,6%. Only Slovakia reached the adequate level of risk-of-poverty, namely 20,6% from this country group by the end of 2010.

The lowest level of people at-risk-of-poverty can be created by the satisfactory economic growth in EU member states based on the social stabilization, for example Czech Republic has the best position by 14,0% in EU-27. After that Sweden with 15,0%, Netherlands with 15,1%, Austria with 16,6%, Finland with 16,9%, Luxembourg with 17,1%, Denmark with 18,3%, France with 19,3% and Germany with 19,7% (see Table 3.2-1 and Figure 3.2-1). The reasons, which resulted in the people at-risk-of-poverty or social exclusion, which are as follows:

.- in general the high level of unemployment rate can contribute to the unfavourable conditions of people at-risk-of-poverty;
.- large share of the nationalities level from the all population of one country accompanying with considerable unemployment level, for example: Hungarians in Romania (41,4 %), Turkish nationalities in Bulgaria (41,6 %);
.- the people at-risk-of-poverty could became considerable in France (19,3 %) and in United Kingdom (23,1%) in consequence of highly number of foreign quest workers coming from North Africa and some Asian countries.

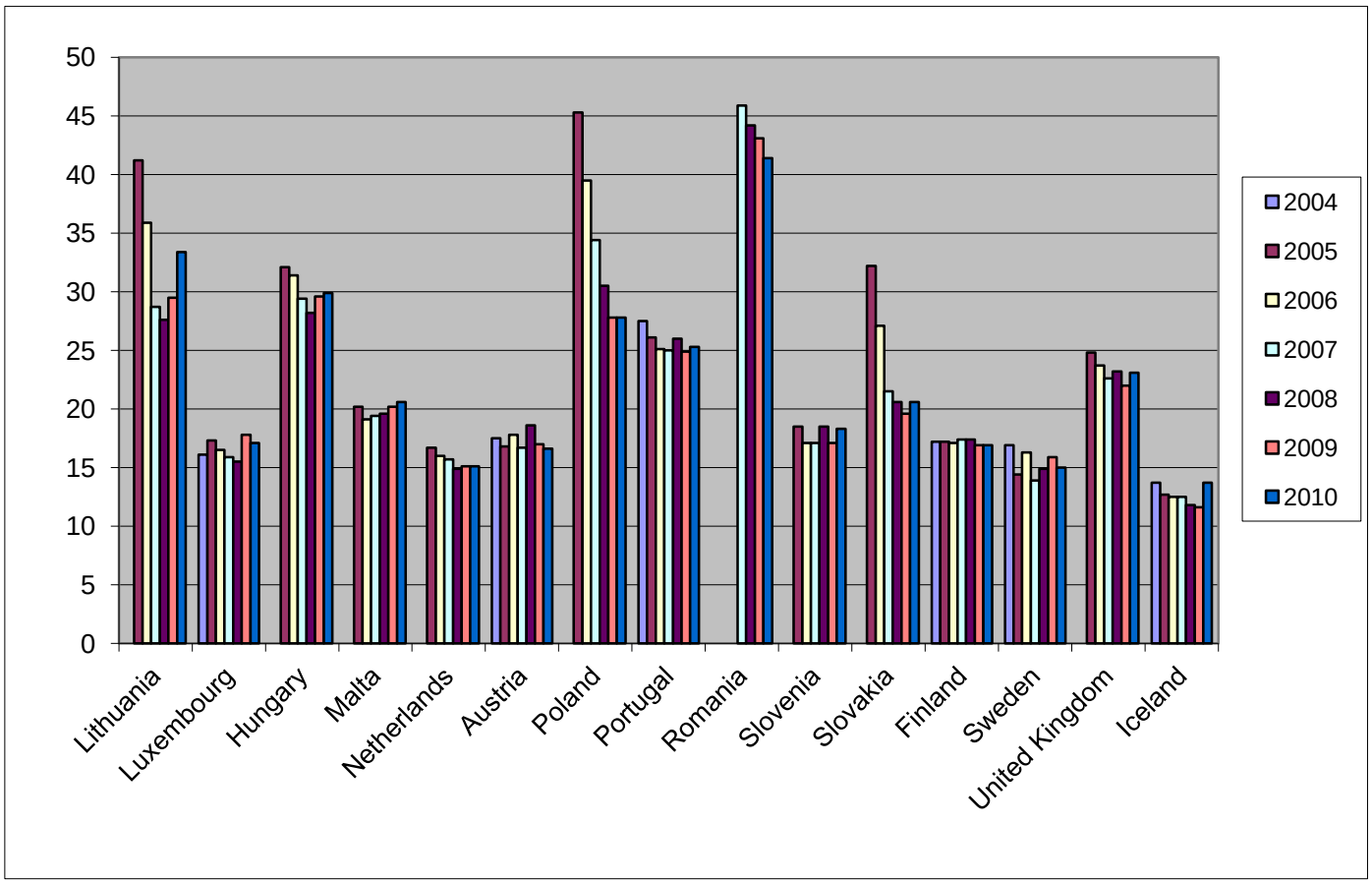
The reasons of the lower level of people at-risk-of-poverty come from favourable economic and social conditions, which are as follows:
- highly level of employment;
- low level of unemployment rate;
- better income positions for workers employed in industrial sectors;

Figure 3.2 -1: People at-risk-of-poverty or social exclusion, % and 1000 persons, % of total population, between 2004 - 2010



Source: Eurostat Structural Indicators, Employment rate (total and by gender)
Eurostat Structural Indicators, Employment, 2010

Figure 3.2-1: People at-risk-of-poverty or social exclusion, % and 1000 persons, % of total population, between 2004 – 2010 *(Continued)*



Source of Data: Eurostat
http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsdsc100

Short Description for **Figure 3.2-1**: The Europe 2020 strategy promotes social inclusion, in particular through the reduction of poverty, by aiming to lift at least 20 million people out of the risk of poverty and social exclusion. This indicator corresponds to the sum of persons who are: at risk of poverty or severely materially deprived or living in households with very low work intensity. Persons are only counted once even if they are present in several sub-indicators. At risk-of-poverty are persons with an equivalent disposable income below the risk-of-poverty threshold, which is set at 60 % of the national median equivalent disposable income (after social transfers). Material deprivation covers indicators relating to economic strain and durables. Severely materially deprived persons have living conditions severely constrained by a lack of resources, they experience at least 4 out of 9 following deprivations items: cannot afford i) to pay rent or utility bills, ii) keep home adequately warm, iii) face unexpected expenses, iv) eat meat, fish or a protein equivalent every second day, v) a week holiday away from home, vi) a car, vii) a washing machine, viii) a colour TV, or ix) a telephone. People living in households with very low work intensity are those aged 0-59 living in households where the adults (aged 18-59) work less than 20% of their total work potential during the past year.

- less share of small and medium scale enterprises in highly developed EU member states;
- strong social network with adequate pension purchasing power and health ensure and care system;
- foreign direct investment activity at highly or higher level.

As the *Table 3.2-2* shows that the poverty correlation is very considerably in EU-12 after EU enlargement, even when this correlation increased in 2005-2007, and then this correlation rate decreased to closed level of 2004 in 2008-2009. In spite of this little better favourable correlation conditions the poverty correlation increased to almost level of 2010. In 2006 the poverty correlation of EU-12 was highest based on the mean of the 11 year period, when the standard deviation was also the highest, namely 13,4372. In case of EU-12 the value of the standard deviation has been between 9,6 and 10,22 for the period of 2008-2010. But in contradiction to EU-12, poverty correlation of EU-15 was more favourable, which is proofed by data that standard deviation of EU-15 has been very closed to level of 4,5 and 4,2 values for period of 2005-2010.

The *Table 3.2-3 and Table 3.2-4* show some interesting data that the poverty correlation development trends are very far between Belgium, Bulgaria and Czech Republic and Germany from Denmark. Germany is for from Czech Republic, but Germany is closed to Bulgaria and Belgium. Germany also is very far from Estonia, Ireland, Greece and Spain, but Germany and Italy almost are closed to each other. The closed developing trend of poverty correlation does not mean that each country can be developed or has considerable

backwardness from the other EU member state. In spite that the poverty correlation of EU-15 is almost fixed and not fluctuating, but it can be very sensitivity in the future, because many foreign immigrants will come from developing countries to the several member states of highly developed EU-15, who can strengthen the poverty level of these EU member states (see *Table 3.2-3, Table 3.2-4*).

Table 3.2-1: People at-risk-of-poverty or social exclusion, % and 1000 persons, % of total population, between 2004 - 2010

	2004	2005	2006	2007	2008	2009	2010
EU (27 countries)	:	25,7	25,3	24,4	23,6	23,1	23,4
EU (15 countries)	:	21,6	21,9	21,6	21,5	21,1	21,6
Belgium	22,4	22,8	21,5	21,6	20,8	20,2	20,8
Bulgaria	:	:	62,2	60,7	44,8	46,2	41,6
Czech Republic	:	19,6	18	15,8	15,3	14	14,4
Denmark	16,5	17,2	16,7	16,8	16,3	17,6	18,3
Germany	:	18,4	20,3	20,7	20,1	20	19,7
Estonia	27,3	26,4	22,2	22	21,8	23,4	21,7
Ireland	24,8	25	23,3	23,1	23,7	25,7	:
Greece	31	29,3	29,5	27,7	28,2	27,6	27,7
Spain	26,1	24,2	23,9	23,1	22,9	23,4	25,5
France	19,9	19	18,8	19	18,6	18,4	19,3
Italy	26,4	25	25,9	26,1	25,3	24,7	24,5
Cyprus	:	25,4	25,4	25,2	22,2	22,2	:
Latvia	:	46,3	41,4	35,8	33,8	37,4	38,1
Lithuania	:	41,2	35,9	28,7	27,6	29,5	33,4
Luxembourg	16,1	17,3	16,5	15,9	15,5	17,8	17,1
Hungary	:	32,1	31,4	29,4	28,2	29,6	29,9
Malta	:	20,2	19,1	19,4	19,6	20,2	20,6
Netherlands	:	16,7	16	15,7	14,9	15,1	15,1
Austria	17,5	16,8	17,8	16,7	18,6	17	16,6
Poland	:	45,3	39,5	34,4	30,5	27,8	27,8
Portugal	27,5	26,1	25,1	25	26	24,9	25,3
Romania	:	:	:	45,9	44,2	43,1	41,4
Slovenia	:	18,5	17,1	17,1	18,5	17,1	18,3
Slovakia	:	32,2	27,1	21,5	20,6	19,6	20,6
Finland	17,2	17,2	17,1	17,4	17,4	16,9	16,9
Sweden	16,9	14,4	16,3	13,9	14,9	15,9	15
United Kingdom	:	24,8	23,7	22,6	23,2	22	23,1
Iceland	13,7	12,7	12,5	12,5	11,8	11,6	13,7

Source of Data: Eurostat
http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsdsc100

Table 3.2-2: Poverty Correlation in EU-27

	EU12_15	N	Mean	Standard Deviation	Std. Error Mean
@2004	EU12	1	27,300	.	.
	EU15	12	21,858	5,1694	1,4923
@2005	EU12	10	30,720	10,5402	3,3331
	EU15	15	20,947	4,5340	1,1707
@2006	EU12	11	30,845	13,4372	4,0515
	EU15	15	20,827	4,2297	1,0921
@2007	EU12	12	29,658	13,1033	3,7826
	EU15	15	20,353	4,2263	1,0912
@2008	EU12	12	27,258	9,6630	2,7895
	EU15	15	20,427	4,2948	1,1089
@2009	EU12	12	27,508	10,2273	2,9524
	EU15	15	20,480	3,9739	1,0261
@2010	EU12	11	27,982	9,6312	2,9039
	EU15	14	20,350	4,1923	1,1204

Source of Data: Eurostat
http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsdsc100

Table 3.2-3: Poverty Correlation in EU-28 (Belgium- Lithuania)

EU-26		Be	Bu	Cz	D	G	Est	Ire	Gr	Sp	F	I	Cyp	Lat	Lith
Be	P. cor	1	,830	.922**	-,356	-,571	,740	-,030	,738	,387	,605	,833	,757	,757	,762
	Sig.		,082	,009	,433	,237	,057	,956	,058	,391	,150	,080	,082	,082	,078
	N	7	5	6	7	6	7	6	7	7	7	5	6	6	6
Bu	P. cor	,830	1	,824	-,523	,859	-,020	-,676	,566	-,352	,029	.998**	,415	,415	,285
	Sig.	,082		,086	,365	,062	,974	,324	,320	,561	,963	,002	,487	,487	,642
	N	5	5	5	5	5	5	4	5	5	5	4	5	5	5
Cz	P. cor	.922**	,824	1	-,357	-,549	,659	-,122	.912*	,044	,218	,796	.826*	.826*	.821*
	Sig.	,009	,086		,488	,260	,155	,845	,011	,934	,678	,107	,043	,043	,045
	N	6	5	6	6	6	6	5	6	6	6	5	6	6	6
D	P. cor	-,356	-,523	-,357	1	-,313	-,189	,665	-,502	,293	-,039	-,049	,192	,192	,219
	Sig.	,433	,365	,488		,545	,685	,150	,251	,524	,934	,937	,716	,716	,677
	N	7	5	6	7	6	7	6	7	7	7	5	6	6	6
G	P. cor	-,571	,859	-,549	-,313	1	-.860*	-,598	-,433	-,445	-,244	-,185	-,771	-,771	-,784
	Sig.	,237	,062	,260	,545		,028	,287	,392	,377	,641	,766	,073	,073	,065
	N	6	5	6	6	6	6	5	6	6	6	5	6	6	6
Est	P. cor	,740	-,020	,659	-,189	-.860*	1	,633	.765*	,538	,560	,290	,810	,810	,727
	Sig.	,057	,974	,155	,685	,028		,178	,045	,213	,191	,636	,051	,051	,102
	N	7	5	6	7	6	7	6	7	7	7	5	6	6	6
Ire	P. cor	-,030	-,676	-,122	,665	-,598	,633	1	,112	,356	,015	-,416	,327	,327	,230
	Sig.	,956	,324	,845	,150	,287	,178		,833	,489	,978	,486	,591	,591	,710
	N	6	4	5	6	5	6	6	6	6	6	5	5	5	5
Gr	P. cor	,738	,566	.912*	-,502	-,433	.765*	,112	1	,586	,655	,610	,751	,751	,768
	Sig.	,058	,320	,011	,251	,392	,045	,833		,167	,111	,274	,085	,085	,075
	N	7	5	6	7	6	7	6	7	7	7	5	6	6	6
Sp	P. cor	,387	-,352	,044	,293	-,445	,538	,356	,586	1	.876**	,622	,436	,436	,550
	Sig.	,391	,561	,934	,524	,377	,213	,489	,167		,010	,263	,388	,388	,259
	N	7	5	6	7	6	7	6	7	7	7	5	6	6	6
F	P. cor	,605	,029	,218	-,039	-,244	,560	,015	,655	.876**	1	,457	.902*	,295	,425
	Sig.	,150	,963	,678	,934	,641	,191	,978	,111	,010		,302	,036	,571	,401
	N	7	5	6	7	6	7	6	7	7	7	7	5	6	6
It	P. cor	,508	.915*	,355	-.780*	,557	,272	-,573	,622	,094	,457	1	,595	-,118	-,147
	Sig.	,245	,029	,490	,038	,251	,555	,235	,136	,841	,302		,290	,824	,781
	N	7	5	6	7	6	7	6	7	7	7	7	5	6	6
Cyp	P. cor	,833	.998**	,796	-,049	-,185	,290	-,416	,610	,622	.902*	,595	1	,644	,666

	Sig.	,080	,002	,107	,937	,766	,636	,486	,274	,263	,036	,290		,241	,219
	N	5	4	5	5	5	5	5	5	5	5	5	5	5	5
Lat	P. cor	,757	,415	.826*	,192	-,771	,810	,327	,751	,436	,295	-,118	,644	1	.979**
	Sig.	,082	,487	,043	,716	,073	,051	,591	,085	,388	,571	,824	,241		,001
	N	6	5	6	6	6	6	5	6	6	6	6	5	6	6

EU-26		Be	Bu	Cz	D	G	Est	Ire	Gr	Sp	F	I	Cyp	Lat	Lith
Lith	P. cor	,762	,285	.821*	,219	-,784	,727	,230	,768	,550	,425	-,147	,666	.979**	1
	Sig.	,078	,642	,045	,677	,065	,102	,710	,075	,259	,401	,781	,219	,001	
	N	6	5	6	6	6	6	5	6	6	6	6	5	6	6
Lux	P. cor	-,162	-,326	-,006	.774*	-,528	,185	,762	-,217	,160	-,228	-,686	-,027	,540	,462
	Sig.	,728	,593	,990	,041	,282	,691	,078	,640	,732	,623	,089	,965	,269	,356
	N	7	5	6	7	6	7	6	7	7	7	7	5	6	6
Hu	P. cor	,724	,544	.812*	,181	-,610	,683	,196	,765	,443	,325	,017	,743	.973**	.951**
	Sig.	,104	,343	,050	,732	,198	,134	,752	,077	,379	,530	,974	,150	,001	,004
	N	6	5	6	6	6	6	5	6	6	6	6	5	6	6
Ma	P. cor	-,153	-,849	-,300	.850*	-,596	,329	.931*	-,389	,641	,289	-.937**	-,362	,177	,205
	Sig.	,773	,069	,563	,032	,211	,525	,022	,446	,171	,579	,006	,549	,737	,696
	N	6	5	6	6	6	6	5	6	6	6	6	5	6	6
Ne	P. cor	.935**	.948*	.938**	-,148	-,552	,737	,008	,763	,120	,303	,309	,876	.882*	.841*
	Sig.	,006	,014	,006	,780	,256	,094	,990	,078	,820	,559	,551	,052	,020	,036
	N	6	5	6	6	6	6	5	6	6	6	6	5	6	6
Aus	P. cor	-,140	-,009	,021	-,729	,266	-,133	-,319	,277	-,277	-,219	,295	-,460	-,355	-,312
	Sig.	,765	,989	,968	,063	,611	,777	,538	,547	,547	,638	,520	,436	,491	,547
	N	7	5	6	7	6	7	6	7	7	7	7	5	6	6
Pl	P. cor	.940**	.919*	.992**	-,357	-,520	,683	-,113	.867*	-,005	,209	,396	,846	.819*	,796
	Sig.	,005	,027	,000	,488	,290	,135	,857	,026	,993	,691	,436	,071	,046	,058
	N	6	5	6	6	6	6	5	6	6	6	6	5	6	6
Por	P. cor	,618	-,447	,481	-,440	-,678	.778*	,256	.809*	,606	,723	,428	-,027	,296	,373
	Sig.	,139	,450	,334	,323	,139	,039	,625	,027	,150	,066	,338	,966	,569	,466
	N	7	5	6	7	6	7	6	7	7	7	7	5	6	6
Ro	P. cor	,654	,878	,829	-,818	.969*	-,046	-,911	,215	-,833	-,247	.964*	,921	-,660	-,812
	Sig.	,346	,122	,171	,182	,031	,954	,270	,785	,167	,753	,036	,255	,340	,188
	N	4	4	4	4	4	4	3	4	4	4	4	3	4	4
Slo Ven	P. cor	,261	-,735	,176	,099	-,663	,278	,153	,130	,346	,340	-,499	-,149	,163	,290
	Sig.	,617	,157	,739	,852	,151	,593	,806	,807	,502	,510	,313	,811	,758	,577
	N	6	5	6	6	6	6	5	6	6	6	6	5	6	6
Slo	P. cor	.902*	,745	.977**	-,174	-,687	,761	,069	.889*	,188	,250	,164	,730	.922**	.914*

Vak	Sig.	,014	,149	,001	,742	,131	,079	,913	,018	,721	,633	,756	,161	,009	,011
	N	6	5	6	6	6	6	5	6	6	6	6	5	6	6
Fi	P. cor	,402	,401	,306	-.809*	,201	,025	-,684	,161	-,405	,049	,610	,192	-,244	-,236
	Sig.	,371	,503	,555	,028	,702	,958	,134	,731	,368	,917	,146	,757	,641	,653
	N	7	5	6	7	6	7	6	7	7	7	7	5	6	6
Sw	P. cor	-,025	,002	-,116	-,169	,175	,359	,318	,630	,501	,299	,290	-,262	,071	,046
	Sig.	,958	,997	,826	,718	,740	,429	,539	,130	,252	,515	,528	,670	,894	,931
	N	7	5	6	7	6	7	6	7	7	7	7	5	6	6
UK	P. cor	.850*	,267	.896*	-,171	-,729	,609	-,061	.841*	,310	,402	,048	,592	,787	.855*
	Sig.	,032	,664	,016	,746	,100	,199	,922	,036	,550	,429	,927	,293	,063	,030
	N	6	5	6	6	6	6	5	6	6	6	6	5	6	6
Ice	P. cor	,484	-,082	,139	,258	-,263	,364	-,027	,477	.914**	.926**	,201	.978**	,326	,464
	Sig.	,272	,896	,794	,576	,614	,422	,959	,279	,004	,003	,666	,004	,528	,353
	N	7	5	6	7	6	7	6	7	7	7	7	5	6	6
EU-26		Be	Bu	Cz	D	G	Est	Ire	Gr	Sp	F	I	Cyp	Lat	Lith

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

P. cor. = Person correlation, Sig. = Sig. (2-tailed), N = Number of the years, Value between: -1 < 0 < 1

Source of Data: Eurostat
http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsdsc100

Table 3.2-4: Poverty Correlation in EU-28 (Luxemburg - Iceland)

EU-28		Lux	Hu	Ma	Ne	Au	Pl	Po	Ro	Sloven	Slovak	F	Sw	UK	Ice
Be	P. cor	-,162	,724	-,153	.935**	-,140	.940**	,618	,654	,261	.902*	,402	-,025	.850*	,484
	Sig.	,728	,104	,773	,006	,765	,005	,139	,346	,617	,014	,371	,958	,032	,272
	N	7	6	6	6	7	6	7	4	6	6	7	7	6	7
Bu	P. cor	-,326	,544	-,849	.948*	-,009	.919*	-,447	,878	-,735	,745	,401	,002	,267	-,082
	Sig.	,593	,343	,069	,014	,989	,027	,450	,122	,157	,149	,503	,997	,664	,896
	N	5	5	5	5	5	5	5	4	5	5	5	5	5	5
Cz	P. cor	-,006	.812*	-,300	.938**	,021	.992**	,481	,829	,176	.977**	,306	-,116	.896*	,139
	Sig.	,990	,050	,563	,006	,968	,000	,334	,171	,739	,001	,555	,826	,016	,794
	N	6	6	6	6	6	6	6	4	6	6	6	6	6	6
D	P. cor	.774*	,181	.850*	-,148	-,729	-,357	-,440	-,818	,099	-,174	-.809*	-,169	-,171	,258
	Sig.	,041	,732	,032	,780	,063	,488	,323	,182	,852	,742	,028	,718	,746	,576
	N	7	6	6	6	7	6	7	4	6	6	7	7	6	7
G	P. cor	-,528	-,610	-,596	-,552	,266	-,520	-,678	.969*	-,663	-,687	,201	,175	-,729	-,263
	Sig.	,282	,198	,211	,256	,611	,290	,139	,031	,151	,131	,702	,740	,100	,614
	N	6	6	6	6	6	6	6	4	6	6	6	6	6	6
Est	P. cor	,185	,683	,329	,737	-,133	,683	.778*	-,046	,278	,761	,025	,359	,609	,364
	Sig.	,691	,134	,525	,094	,777	,135	,039	,954	,593	,079	,958	,429	,199	,422
	N	7	6	6	6	7	6	7	4	6	6	7	7	6	7
Ire	P. cor	,762	,196	.931*	,008	-,319	-,113	,256	-,911	,153	,069	-,684	,318	-,061	-,027
	Sig.	,078	,752	,022	,990	,538	,857	,625	,270	,806	,913	,134	,539	,922	,959
	N	6	5	5	5	6	5	6	3	5	5	6	6	5	6
Gr	P. cor	-,217	,765	-,389	,763	,277	.867*	.809*	,215	,130	.889*	,161	,630	.841*	,477
	Sig.	,640	,077	,446	,078	,547	,026	,027	,785	,807	,018	,731	,130	,036	,279
	N	7	6	6	6	7	6	7	4	6	6	7	7	6	7
Sp	P. cor	,160	,443	,641	,120	-,277	-,005	,606	-,833	,346	,188	-,405	,501	,310	.914**
	Sig.	,732	,379	,171	,820	,547	,993	,150	,167	,502	,721	,368	,252	,550	,004
	N	7	6	6	6	7	6	7	4	6	6	7	7	6	7
F	P. cor	-,228	,325	,289	,303	-,219	,209	,723	-,247	,340	,250	,049	,299	,402	.926**
	Sig.	,623	,530	,579	,559	,638	,691	,066	,753	,510	,633	,917	,515	,429	,003
	N	7	6	6	6	7	6	7	4	6	6	7	7	6	7
It	P. cor	-,686	,017	-.937**	,309	,295	,396	,428	.964*	-,499	,164	,610	,290	,048	,201
	Sig.	,089	,974	,006	,551	,520	,436	,338	,036	,313	,756	,146	,528	,927	,666
	N	7	6	6	6	7	6	7	4	6	6	7	7	6	7
Cyp	P. cor	-,027	,743	-,362	,876	-,460	,846	-,027	,921	-,149	,730	,192	-,262	,592	.978**
	Sig.	,965	,150	,549	,052	,436	,071	,966	,255	,811	,161	,757	,670	,293	,004
	N	5	5	5	5	5	5	5	3	5	5	5	5	5	5
Lat	P. cor	,540	.973**	,177	.882*	-,355	.819*	,296	-,660	,163	.922**	-,244	,071	,787	,326

	Sig.	,269	,001	,737	,020	,491	,046	,569	,340	,758	,009	,641	,894	,063	,528
	N	6	6	6	6	6	6	6	4	6	6	6	6	6	6

EU-28		Lux	Hu	Ma	Ne	Au	Pl	Po	Ro	Sloven	Slovak	F	Sw	UK	Ice
Lith	P. cor	,462	.951**	,205	.841*	-,312	,796	,373	-,812	,290	.914*	-,236	,046	.855*	,464
	Sig.	,356	,004	,696	,036	,547	,058	,466	,188	,577	,011	,653	,931	,030	,353
	N	6	6	6	6	6	6	6	4	6	6	6	6	6	6
Lux	P. cor	1	,506	,680	,195	-,613	,009	-,338	-,658	-,091	,189	-.834*	,086	-,004	-,041
	Sig.		,306	,137	,711	,143	,986	,458	,342	,864	,720	,020	,855	,994	,930
	N	7	6	6	6	7	6	7	4	6	6	7	7	6	7
Hu	P. cor	,506	1	,047	.886*	-,377	,811	,113	-,448	-,019	.889*	-,274	,156	,717	,367
	Sig.	,306		,930	,019	,462	,050	,831	,552	,971	,018	,599	,767	,109	,474
	N	6	6	6	6	6	6	6	4	6	6	6	6	6	6
Ma	P. cor	,680	,047	1	-,170	-,547	-,313	,168	-.970*	,496	-,110	-,612	-,136	-,015	,390
	Sig.	,137	,930		,747	,261	,545	,751	,030	,317	,836	,197	,797	,978	,445
	N	6	6	6	6	6	6	6	4	6	6	6	6	6	6
Ne	P. cor	,195	.886*	-,170	1	-,304	.965**	,273	,631	,011	.946**	,174	-,201	,772	,217
	Sig.	,711	,019	,747		,558	,002	,601	,369	,984	,004	,742	,702	,072	,679
	N	6	6	6	6	6	6	6	4	6	6	6	6	6	6
Aus	P. cor	-,613	-,377	-,547	-,304	1	-,051	,295	,209	,166	-,096	,427	,346	,066	-,369
	Sig.	,143	,462	,261	,558		,923	,521	,791	,754	,857	,339	,447	,901	,416
	N	7	6	6	6	7	6	7	4	6	6	7	7	6	7
Pl	P. cor	,009	,811	-,313	.965**	-,051	1	,421	,922	,101	.966**	,330	-,170	.848*	,111
	Sig.	,986	,050	,545	,002	,923		,405	,078	,849	,002	,524	,747	,033	,835
	N	6	6	6	6	6	6	6	4	6	6	6	6	6	6
Por	P. cor	-,338	,113	,168	,273	,295	,421	1	-,025	.888*	,485	,296	,405	,727	,496
	Sig.	,458	,831	,751	,601	,521	,405		,975	,018	,330	,520	,367	,102	,258
	N	7	6	6	6	7	6	7	4	6	6	7	7	6	7
Ro	P. cor	-,658	-,448	-.970*	,631	,209	,922	-,025	1	-,451	,585	,855	-,652	-,149	-,481
	Sig.	,342	,552	,030	,369	,791	,078	,975		,549	,415	,145	,348	,851	,519
	N	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Slo Ven	P. cor	-,091	-,019	,496	,011	,166	,101	.888*	-,451	1	,231	,145	-,377	,564	,320
	Sig.	,864	,971	,317	,984	,754	,849	,018	,549		,659	,784	,461	,244	,537
	N	6	6	6	6	6	6	6	4	6	6	6	6	6	6
Slo Vak	P. cor	,189	.889*	-,110	.946**	-,096	.966**	,485	,585	,231	1	,129	-,071	.912*	,205
	Sig.	,720	,018	,836	,004	,857	,002	,330	,415	,659		,807	,893	,011	,696
	N	6	6	6	6	6	6	6	4	6	6	6	6	6	6
Fi	P. cor	-.834*	-,274	-,612	,174	,427	,330	,296	,855	,145	,129	1	-,405	,212	-,183

	Sig.	,020	,599	,197	,742	,339	,524	,520	,145	,784	,807		,367	,687	,695
	N	7	6	6	6	7	6	7	4	6	6	7	7	6	7
Sw	P. cor	,086	,156	-,136	-,201	,346	-,170	,405	-,652	-,377	-,071	-,405	1	-,172	,205
	Sig.	,855	,767	,797	,702	,447	,747	,367	,348	,461	,893	,367		,745	,659
	N	7	6	6	6	7	6	7	4	6	6	7	7	6	7
UK	P. cor	-,004	,717	-,015	,772	,066	.848*	,727	-,149	,564	.912*	,212	-,172	1	,360
	Sig.	,994	,109	,978	,072	,901	,033	,102	,851	,244	,011	,687	,745		,484
	N	6	6	6	6	6	6	6	4	6	6	6	6	6	6
Ice	P. cor	-,041	,367	,390	,217	-,369	,111	,496	-,481	,320	,205	-,183	,205	,360	1
	Sig.	,930	,474	,445	,679	,416	,835	,258	,519	,537	,696	,695	,659	,484	
	N	7	6	6	6	7	6	7	4	6	6	7	7	6	7
EU-28		Lux	Hu	Ma	Ne	Au	Pl	Po	Ro	Sloven	Slovak	F	Sw	UK	Ice

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

P. cor. = Person correlation, Sig. = Sig. (2-tailed), N = Number of the years, Value between: -1 < 0 < 1

Source of Data: Eurostat
http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsdsc100

3.3. The annual real GDP growth rates, in the world and in several regions

In order to put place of the EU-27 into the world economy this needs some international compares concerning the *annual real GDP growth rates, in the world and in several regions* (%), between 2005 and 2011 (see Table 3.3-1 and Figure 3.3-1). The world annual real GDP growth rate suddenly has declined since 2008 in consequence of global economic crisis and economic recession followed the crisis, and its deepest decline was from 5,3% in 2007 to -0,6% in 2009. The world annual real GDP growth rate fortunately increased from -0,6% in 2009 to 4,8% in 2010, and also it seems as a good ambition growth perspective with growth rate as 4,2% in 2011. The hope of world economy is to develop in the future in order to finish the negative influences of the world economic crisis. In general the highly developed economies including EU-27 achieved a considerable decline in their economic growth, and in real GDP growth, from level of 2,9% in 2006 to -3,4% in 2009 during the economic crisis.

In general it can be mentioned that the decline was almost the same rate at the world economic level and at level of the highly developed countries, but the decrease occurred from highly developing trend of the world economy to the less deeper level, but the highly developed economies had lower level economic growth in field of real GDP and this resulted in much deeper decrease than the world economy's one. In general after the economic crisis the world economic developing trends were higher level than the highly developed economies' one, which was resulted by the ambition economic growth of some developing countries, for example Chine, India and Brasilia. After 2009 the annual real GDP growth rate of highly developed economies including the EU was closed to the growth rate of previous years of the global economic crisis, but this growth rate could not reach the rate before the crisis of 2008, namely by 2,3% in 2010 and by 2% in 2011.

In spite that the countries of Middle East (ME = Middle East) and North Africa (NA = North Africa) were concerned and influenced by the world global economic crisis, also their economic growth did not decline as well as the highly developed countries' one and Central and South-Eastern Europe (non-EU) and CIS's one. ME (Middle East) and NA (North Africa) could realise the annual real GDP growth by 5,1% until the end of 2011, which closed to the level of 2005 before crisis. Their economic growth rate was higher than the world's and the highly developed countries' one by the end of 2011. In ME and NA region there are

several petrol exporting countries, which are also OPEC member states, so their economic growth was caused by their increasing petrol income based on increasing petrol demands on the world market. The annual growth rate of GDP connects with the unemployment rate based on the correlation between both of them. From time to time the annual growth rate of GDP can increase by decreasing unemployment rate, but sometimes the GDP growth realise in spite of increasing unemployment rate depending on the world economic conditions or trends. According to Figure 3.3-6, *the unemployment rate* by sex, world and regions (%), both of sexes becomes clearly concerning the country groups, namely Developed Economies and European Union, Central and South-Eastern Europe (non-EU), Middle East and North Africa between 2000 – 2010.

The unemployment rate has moderately changed in the world economy since 2000 by the end of 2010. In consequence of global economic crisis and longer recession followed by the crisis the unemployment rate has increased by 0,5% for period of 2008-2010. The Developed Economies and European Union has realised increasing unemployment rate by 3% from the level of 5,8% in 2007, and to 8,8% by the end of 2010. The increasing unemployment rate shows how the economic recession extents during this time period. Also the unemployment rate of 2010 was higher than it was in 2004, namely 7,2% (see Figure 3.3-2 and Table 3.3-2). In case of Middle East the unemployment rate has moderately been changing for the last decade from 2000 to 2010, when only unemployment rate increased by little 0,6% in 2004 and 2005. This moderate unemployment rate has several reasons, which are as follows:

.- First this unemployment rate was in consequent of its highly average level, and in spite that the female frequently did not work, more other several human resource workers or labour force were employed in countries of Middle East region, of which number could fluctuate depending on the economic crisis, the actual world, national and local market demands based on the market supply-demand balance. But in general this fluctual employed and unemployed workers are mainly foreign.

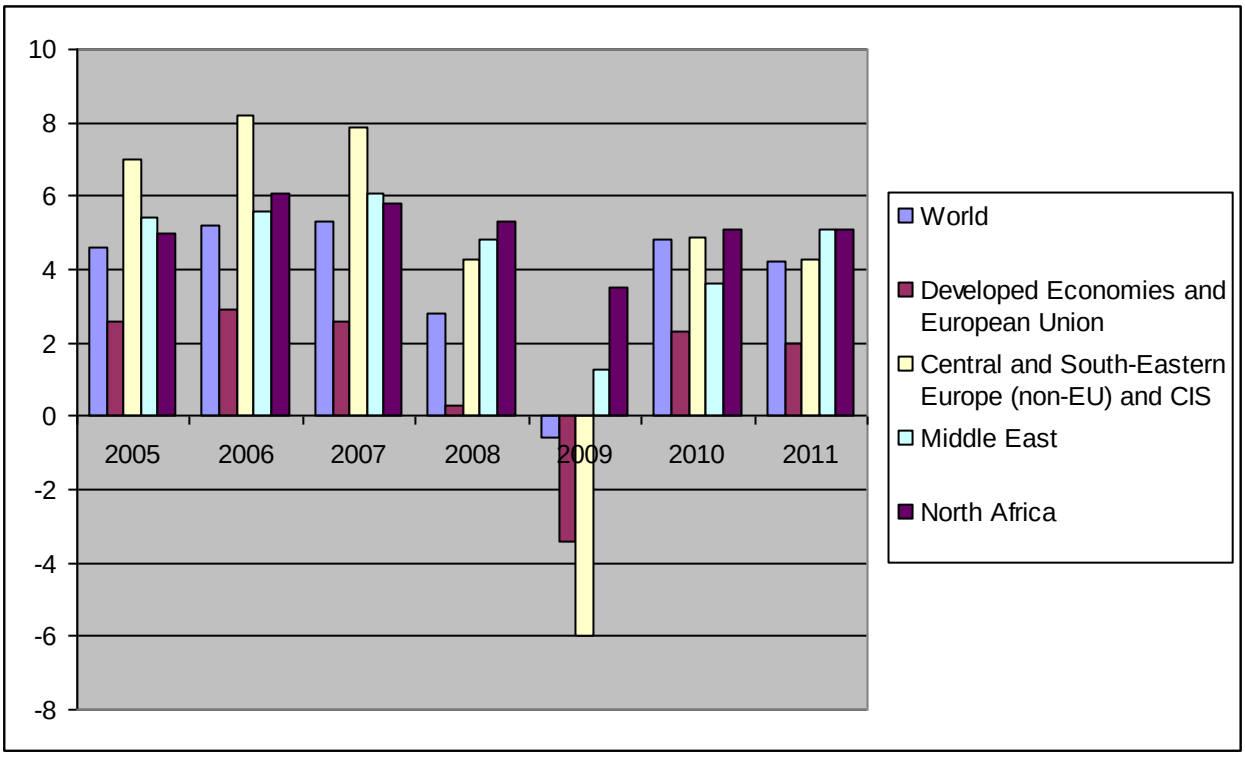
.- Second generally the *foreign employed workers* are not registrated in the national Arab statistical offices as employed human resources. So their number cannot change the unemployment conditions, but their considerable economic role on national labour force market results a highly continuous national Arab unemployment level for period of longer time in Middle East.

If the national Arab economic growth decreases, this leads to decreasing number of foreign workers, which does not appear on the national Arab registration for human resource. So the national Arab unemployment rate remains constant at the level of about 10% in Middle East or moderately changes, which this last one also depends on the foreign direct investment employing national Arab human resources. Also it is realised that Arab human resources can be employed in some other mainly crude oil exporting Arab countries. It means that foreign workers also can Arab national one, but their origin is in other Arab counties.

In North-Africa (NA) there are mostly Arab countries including crude oil exporting countries, for example Algeria and Libya, the unemployment level continuously decreased from level of 14,1% in 2000 to the level of 9,8% in 2010. This means that the number of foreign non Arab and first the Arab unemployed workers decreased, which also resulted in decreasing the unemployment level of the national local – regional Arab human resources in North -Africa. In case of global economic crisis decreasing number of foreign workers employed in North-Africa became more considerable, which lead to possibility to remain continuous decreasing national Arab unemployment level, even in 2008 as year of the global economic crisis and during the period followed by years after crisis.

There is a difference between ME (Middle-East) and NA (North-Africa) in field of the employment and unemployment issues concerning the conditions of human resource management. In the first Arab Region (MENA) the unemployment rate has been continuous for period of 2000-2010, because the fluctuation of employment conditions is concerned by the non-Arab foreign human resource workers. In the second Arab region (NE) the unemployment rate has considerably decreased for the period of 2000 and 2010, because the employment issue is directly concerned by the national Arab human resource workers in direction to decline of their number (see Figure 3.3-2 and Table 3.3-2).

Figure 3.3-1: Annual real GDP growth rates, world and regions (%), between 2005 - 2011



* 2010 are preliminary estimates; 2011 are projections.
Source: IMF, World Economic Outlook, October 2010.

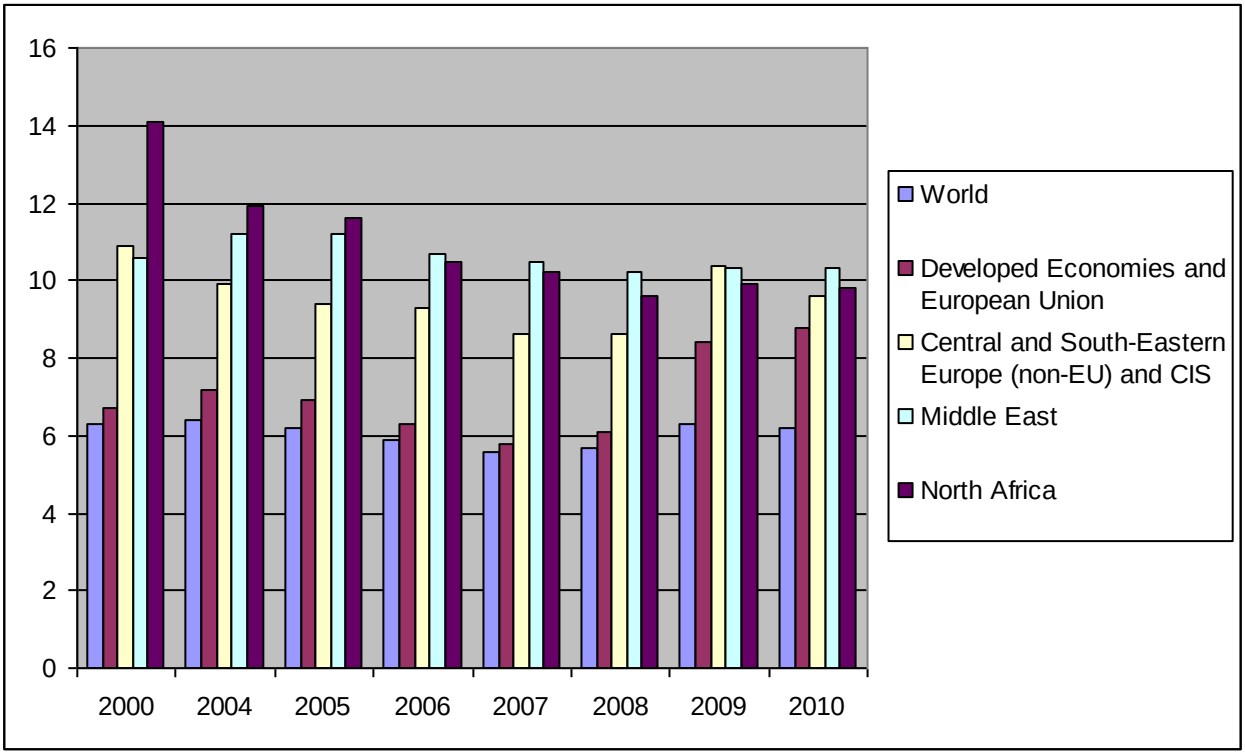
Table 3.3-1: Annual real GDP growth rates, world and regions (%), Regions/ Year

	2005	2006	2007	2008	2009	2010	2011
World	4,6	5,2	5,3	2,8	-0,6	4,8	4,2
DE,EU	2,6	2,9	2,6	0,3	-3,4	2,3	2
CSEE,CIS	7	8,2	7,9	4,3	-6	4,9	4,3
ME	5,4	5,6	6,1	4,8	1,3	3,6	5,1
NA	5	6,1	5,8	5,3	3,5	5,1	5,1

DE,EU = Developed Economies and European Union,
CSEE, CIS= Central and South-Eastern Europe (non-EU) and CIS, ME = Middle East , NA = North Africa

* 2010 are preliminary estimates; 2011 are projections
Source: IMF, World Economic Outlook, October 2010

Figure 3.3-2: Unemployment rate by sex, world and regions (%), both of sexes, between 2000 - 2010



Source: ILO, Trends econometric models, October 2010; see also source of Figure-7

Table 3.3-2: Unemployment rate by sex, world and regions (%)
Both sexes / Regions /Year, between 2000 - 2010

	2000	2004	2005	2006	2007	2008	2009	2010
World	6,3	6,4	6,2	5,9	5,6	5,7	6,3	6,2
DE,EU	6,7	7,2	6,9	6,3	5,8	6,1	8,4	8,8
CSEE,CIS	10,9	9,9	9,4	9,3	8,6	8,6	10,4	9,6
ME	10,6	11,2	11,2	10,7	10,5	10,2	10,3	10,3
NA	14,1	11,9	11,6	10,5	10,2	9,6	9,9	9,8

DE,EU = Developed Economies and European Union,
CSEE, CIS= Central and South-Eastern Europe (non-EU) and CIS
ME = Middle East , NA = North Africa

* Unless otherwise specified, the source of tables is ILO, Trends econometric models, October 2010. For more information regarding the methodology for estimation of the world and regional aggregates of labour market indicators used here and in other Global Employment Trends reports
Source: ILO, Trends econometric models, October 2010; for further information see Annex 4 and "Estimates and projections of labour market indicators", in particular, Trends econometric models: A review of methodology, available at: http://www.ilo.org/empelm/what/projects/lang—en/WCMS_114246/index.htm.
Differences from earlier estimates are due to revisions of World Bank and IMF estimates of GDP and its components that are used in the models, as well as updates of the labour market information used. The latter is based on ILO, Key Indicators of the Labour Market, 6th edition, 2009. Year 2010 Preliminary estimate.
Source: ILO, Trends econometric models, October 2010; see also source of Figure-7

3.4 The employment issue, investment and consumption with energy using based on the international compare

The *unemployment rates*, seasonally adjusted can be analysed, which it can be emphasized based on, in the Figure 3.4-1, that the unemployment rate has increased from 8,8% in developed economies including EU an E-A in 2010 and to 9,9% in EU-27 and 10,4% in 2010 for even one year in EU-27 and Euro-Area-17.

3.4.1 The unemployment conditions in EU-27 with international compare

The unemployment rate was considerable in developed countries and also it had somehow increasing trends in EU-27 and more increasing trend in E-A-17, than average level of EU-27. This data also emphasize that the Mediterranean region of the E-A-17, including Spain, Italy, Portugal, Malta and Greek, has considerable unfavourable economic background which provide less future economic development trend for E-A-17, than all of EU-27. Additionally to data concerning the people at-risk-of-poverty or social exclusion in EU-27, the other data according to the unfavourable economic background of this E-A-17 can also be characterised by highly level of unemployment rate, for example 22,9% in Spain, 19,2% in Greek, 13,6% in Portugal and 8,9% in Italy (see Figure 3.4-1). Their high level of unemployment rate signs less investment activities, highly cost to finance the production and service activities by high interest rates provided by banks, no such adequate diversified economic structure and many regions of Mediterranean area have economic backwardness below of the average economic developed level of EU.

From the Table 3.4-1A it becomes very clearly that how the *unemployment rates* is going on between 2000-2010 in EU-27 comparably with some other developed countries for example USA, Japan and Norway. USA could not keep lower level of unemployment rate, because this country achieved the same level of unemployment rate as the EU-27 also by the end of 2010. Japan has only 5,1%, which has mostly been at the same level for the last decade between 2000-2010. Norway could reach 3,5% unemployment rate, as the best lowest level of unemployment rate, because this was less than Japan's one by the end of 2010 (see Table 3.4-1A).

The unemployment rate is very worst and unfavourable for the *youngest human resources* or potentional workers in EU-27. The negative trend of unemployment rate in field of young people has strengthened since the beginning of the global economic crisis, 2008. The youth unemployment rate was 47,8% in Spain and 45,8% in Greek, which almost has grown by double times since 2008. Even Italy, Portugal, Ireland had unemployment rate closed to 30% by the end of the third quarter year of 2011 in field of young workers, and France, UK, Sweden, Poland and Hungary have grown over the 20% level of young unemployment. The lowest level of unemployment rate in field of young people was in Austria 7,3%, Netherlands by 7,6% by and Germany by 8,6% till the end of the third quarter year of 2011 (see Table 3.4-1B).

The Figure 3.4-2 and Table 3.4-2 show the employment-to-population rate by sex, world and regions (%), both sexes between 2000 – 2010. In point of view of employment-to-population rate in Middle East and North-Africa regions the employment rates are too closed to each other between 2000-2010, which almost did not increase more than 1% or 1,4% between both of them. The employment rate was higher in Middle East than in North-Africa (see the Table 3.4-2), which means that in North-Africa somehow the employment-to-population rate increased little more than the increase was in Middle East region. It can be declared that on the hand in North-Africa the national Arab unemployment rate has decreased by -4,3% more than increase of employment rate by 2,7% for the same period between 2000-2010 (see Table 3.3-2 and Table 3.4-1A and Table 3.4–1B). On the other hand in Middle East the national Arab unemployment rate decreased by -0,3%, which influenced on the increase of employment-to-population rate by 0,6%. The different rate in field of decreasing unemployment rate of North-Africa was so much larger than the decreasing unemployment rate of Middle East; almost the difference was more than 14 times between both of them. This means that the decreasing unemployment rate affected to increase the employment-to-population rate, almost in North-Africa between 2000 – 2010 (see Table 3.4-3).

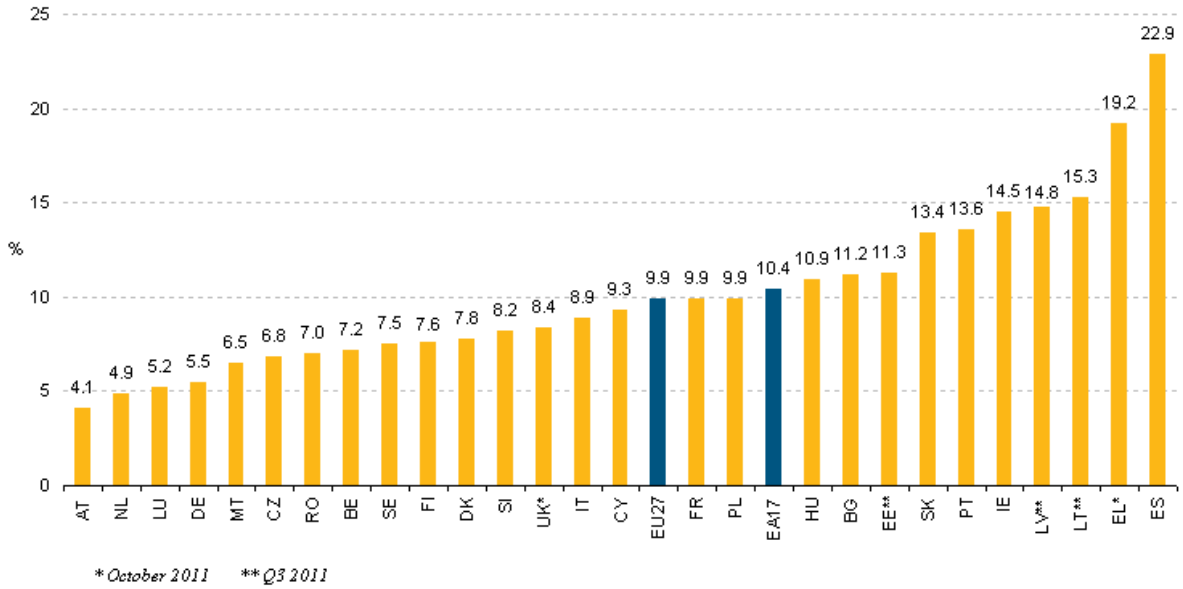
The employment-to-population rate has continuously been stabile in the world economy at level of employment 61-62 percent for the period of 2000- and 2010. The Middle East and North-Africa regions the level of employment-to-population rate was lower by about 16-17% than the world's level. The highly developed countries and EU-27 have hardly higher level of their employment-to-population rate by 8-10% than one of ME and NE (Middle East and

North-Africa) regions. In spite that in EU-27 there were some member states, namely Denmark and Netherlands, Germany Sweden, Finland, Austria and USA, Japan also have higher rate of employment-to-population rate in field of group age between 15-64; finally the other EU member states and some OECD countries, namely Baltic, Mediterranean and Central East European countries have a considerable low level of employment-to-population rate in this group age, which can impact on decreasing trends for the averagely possible future low level of employment-to-population rate in developed countries.

In the new EU-10 and other 2 EU member states, namely Romania and Bulgaria, having low level of employment-to-population rate in group age 15-64, the average data have sharply decreased more in this field. This means that when EU extended its member states with less economic power countries of Europe, this enlargement resulted in decreasing the earlier favourable average data of former EU-15's output. The average employment-to-population rate of the wholly world economy was higher than data of Developed Economies and European Union, CSEE, namely Central and South-Eastern Europe (non-EU) and CIS countries and also Middle East and North Africa, because in general the other parts of the world economy, for example Chine, India and Brasilia had more favourable employment-to-population rate based on their faster economic developing growth against the examples of the above mentioned countries (see Figure 3.4-2 and Table 3.4-2).

The Figure 3.4-3 and Table 3.4-4 show the *annual employment growth* concerning the world and regions (%) and Table 3.4-4. The annual employment growth has moderately been in the wholly world economy since 2000 until the end of 2008 of global economic crisis, when the economic growth has declined since this year by 0,3% from 1,8% in 2007 to 1,5% in 2008 concerning comparably with the previous years.

Figure 3.4-1: Unemployment rates, seasonally adjusted, in December 2011



Source:
http://epp.eurostat.ec.europa.eu/statistics_explained/index.php?title=File:Unemployment_rates,_seasonally_adjusted,_December_2011.png&filetimestamp=20120131090043

Table 3.4-1A: The unemployment rates in EU between 2000- 2010

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
EU-27	8.7	8.5	8.9	9.0	9.1	9.0	8.2	7.2	7.1	9.0	9.6
Euro area	8.5	8.1	8.4	8.8	9.0	9.1	8.5	7.6	7.6	9.6	10.1
Belgium	6.9	6.6	7.5	8.2	8.4	8.5	8.3	7.5	7.0	7.9	8.3
Bulgaria	16.4	19.5	18.2	13.7	12.1	10.1	9.0	6.9	5.6	6.8	10.2
Czech Republic	8.7	8.0	7.3	7.8	8.3	7.9	7.2	5.3	4.4	6.7	7.3
Denmark	4.3	4.5	4.6	5.4	5.5	4.8	3.9	3.8	3.3	6.0	7.4
Germany	7.5	7.6	8.4	9.3	9.8	11.2	10.3	8.7	7.5	7.8	7.1
Estonia	13.6	12.6	10.3	10.0	9.7	7.9	5.9	4.7	5.5	13.8	16.9
Ireland	4.2	3.9	4.5	4.6	4.5	4.4	4.5	4.6	6.3	11.9	13.7
Greece	11.2	10.7	10.3	9.7	10.5	9.9	8.9	8.3	7.7	9.5	12.6
Spain	11.1	10.3	11.1	11.1	10.6	9.2	8.5	8.3	11.3	18.0	20.1
France	9.0	8.3	8.6	9.0	9.3	9.3	9.2	8.4	7.8	9.5	9.7
Italy	10.1	9.1	8.6	8.4	8.0	7.7	6.8	6.1	6.7	7.8	8.4
Cyprus	4.9	3.8	3.6	4.1	4.7	5.3	4.6	4.0	3.6	5.3	6.5
Latvia	13.7	12.9	12.2	10.5	10.4	8.9	6.8	6.0	7.5	17.1	18.7
Lithuania	16.4	16.5	13.5	12.5	11.4	8.3	5.6	4.3	5.8	13.7	17.8
Luxembourg	2.2	1.9	2.6	3.8	5.0	4.6	4.6	4.2	4.9	5.1	4.5
Hungary	6.4	5.7	5.8	5.9	6.1	7.2	7.5	7.4	7.8	10.0	11.2
Malta	6.7	7.6	7.5	7.6	7.4	7.2	7.1	6.4	5.9	7.0	6.8
Netherlands	3.1	2.5	3.1	4.2	5.1	5.3	4.4	3.6	3.1	3.7	4.5
Austria	3.6	3.6	4.2	4.3	4.9	5.2	4.8	4.4	3.8	4.8	4.4
Poland	16.1	18.3	20.0	19.7	19.0	17.8	13.9	9.6	7.1	8.2	9.6
Portugal	4.0	4.1	5.1	6.4	6.7	7.7	7.8	8.1	7.7	9.6	11.0
Romania	7.3	6.8	8.6	7.0	8.1	7.2	7.3	6.4	5.8	6.9	7.3
Slovenia	6.7	6.2	6.3	6.7	6.3	6.5	6.0	4.9	4.4	5.9	7.3
Slovakia	18.8	19.3	18.7	17.6	18.2	16.3	13.4	11.1	9.5	12.0	14.4
Finland	9.8	9.1	9.1	9.0	8.8	8.4	7.7	6.9	6.4	8.2	8.4
Sweden (1)	5.6	5.8	6.0	6.6	7.4	7.7	7.1	6.1	6.2	8.3	8.4
United Kingdom	5.4	5.0	5.1	5.0	4.7	4.8	5.4	5.3	5.6	7.6	7.8
Croatia	:	:	14.8	14.2	13.7	12.7	11.2	9.6	8.4	9.1	11.8
Turkey	:	:	:	:	:	9.2	8.7	8.8	9.7	12.5	10.7
Norway	3.2	3.4	3.7	4.2	4.3	4.5	3.4	2.5	2.5	3.1	3.5
Japan	4.7	5.0	5.4	5.3	4.7	4.4	4.1	3.9	4.0	5.1	5.1
United States	4.0	4.8	5.8	6.0	5.5	5.1	4.6	4.6	5.8	9.3	9.6

(1) Break in series, 2001.
Source: Eurostat (une_rt_a)

Source:
http://epp.eurostat.ec.europa.eu/statistics_explained/index.php?title=File:Table_unemployment_rates.PNG&filetimestamp=20110504123450

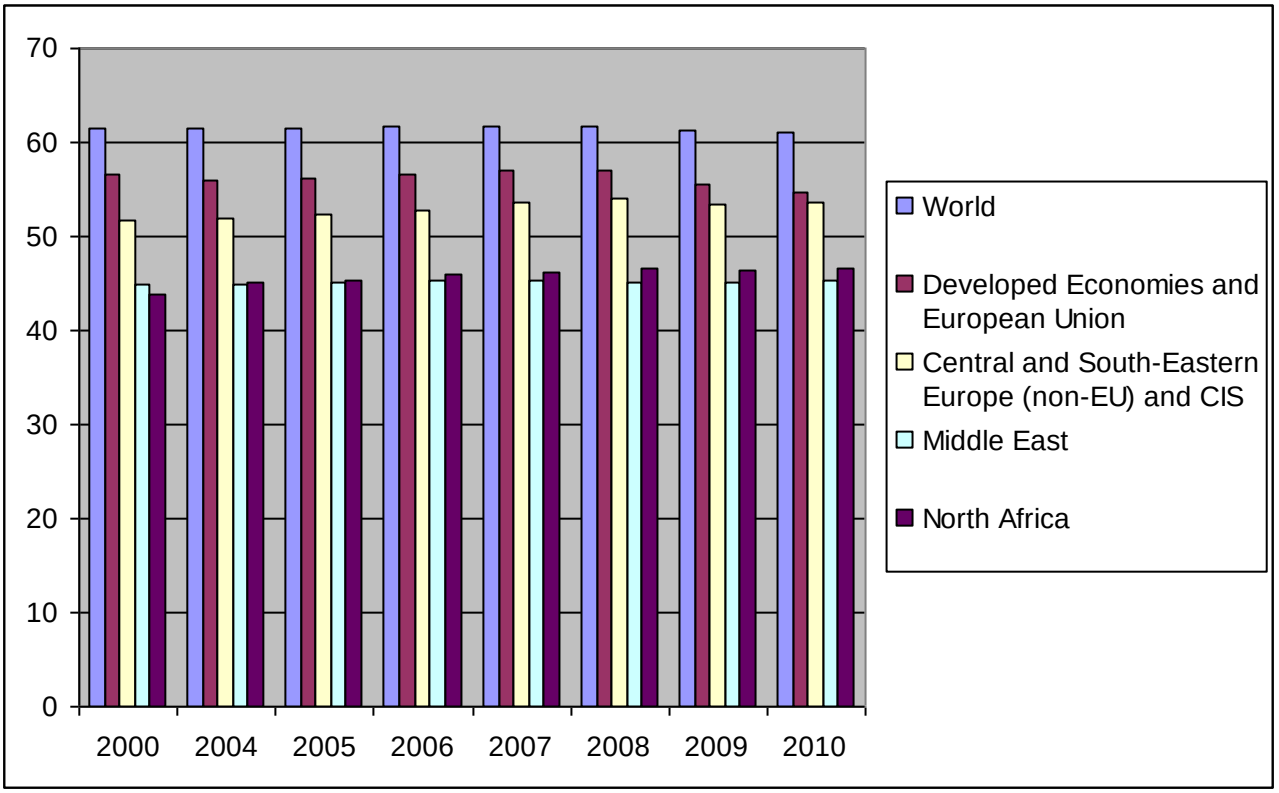
Table 3.4-1B: Youth unemployment figures, between 2008-2011Q3 (%)

	Youth unemployment rate				Youth unemployment ratio		
	2008	2009	2010	Q3-2011 (1)	2008	2009	2010
EU-27	15.8	20.1	21.1	21.6	6.9	8.7	9.0
Euro area	16.0	20.2	20.9	20.9	6.9	8.7	8.7
Belgium	18.0	21.9	22.4	20.5	6.0	7.1	7.3
Bulgaria	12.7	16.2	23.2	25.4	3.8	4.8	6.7
Czech Republic	9.9	16.6	18.3	18.0	3.1	5.3	5.7
Denmark	7.6	11.2	13.8	14.7	5.5	8.0	9.3
Germany	10.6	11.2	9.9	8.6	5.5	5.8	5.1
Estonia	12.0	27.5	32.9	21.8	5.0	11.0	12.6
Ireland	13.3	24.4	27.8	29.9	6.7	11.3	11.6
Greece	22.1	25.8	32.9	45.8	6.7	8.0	10.0
Spain	24.6	37.8	41.6	47.8	11.7	17.1	17.8
France	19.3	23.9	23.7	22.8	7.2	9.2	8.9
Italy	21.3	25.4	27.8	28.2	6.6	7.4	7.9
Cyprus	8.8	14.0	17.2	23.1	3.8	5.7	6.8
Latvia	13.1	33.6	34.5	29.9	5.6	14.0	13.9
Lithuania	13.4	29.2	35.1	31.1	4.1	8.9	10.4
Luxembourg	17.3	16.5	15.6	15.3	5.2	5.5	3.5
Hungary	19.9	26.5	26.6	26.1	5.0	6.5	6.6
Malta	11.8	14.4	13.1	14.0	6.4	7.4	6.7
Netherlands (2)	6.3	7.7	8.7	7.6	3.9	4.8	6.0
Austria	8.0	10.0	8.8	7.3	4.9	6.0	5.2
Poland	17.3	20.6	23.7	26.0	5.7	7.0	8.2
Portugal	*20.2*	*24.8*	*27.7*	29.9	*6.8*	*7.9*	*8.2*
Romania	18.6	20.8	22.1	23.4	5.7	6.4	6.9
Slovenia	10.4	13.6	14.7	15.2	4.5	5.6	5.9
Slovakia	19.0	27.3	33.6	33.7	6.2	8.6	10.4
Finland	16.5	21.5	21.4	19.9	8.8	10.9	10.6
Sweden	20.2	25.0	25.2	22.3	10.7	12.8	13.0
United Kingdom	15.0	19.1	19.6	21.8	9.2	11.4	11.6
Norway	7.2	8.9	8.9	8.8	4.6	5.3	5.3
Croatia	21.9	25.0	32.5	34.5	7.6	8.6	11.2
Turkey	18.4	22.7	19.7	17.0	6.9	8.5	7.4
Japan	7.3	9.1	9.3		:	:	:
United States	12.8	17.6	18.4	17.5	:	:	:

(1) The quarterly youth unemployment rate is seasonally adjusted.
(2) Youth unemployment ratio, break in series, 2010.

Source:
http://epp.eurostat.ec.europa.eu/statistics_explained/index.php?title=File:Youth_unemployment_rates,_2008-2011Q3,_%28%25%29.png&filetimestamp=20120127135533

Figure 3.4-2: Employment-to-population rate by sex, world and regions (%), both sexes, between 2000 - 2010



* 2010 are preliminary estimates;
Source: ILO, Trends econometric models, October 2010.

Table 3.4-2: Employment-to-population rate by sex, world and regions (%)
Both sexes / Regions /Year, between 2000 - 2010

	2000	2004	2005	2006	2007	2008	2009	2010
World	61,5	61,4	61,4	61,6	61,7	61,6	61,2	61,1
DE,EU	56,7	55,9	56,2	56,7	57,1	57,1	55,5	54,7
CSEE,CIS	51,7	51,9	52,4	52,8	53,7	54,1	53,4	53,6
ME	44,8	44,9	45,1	45,3	45,3	45,1	45,2	45,4
NA	43,9	45,2	45,4	46	46,1	46,5	46,4	46,6

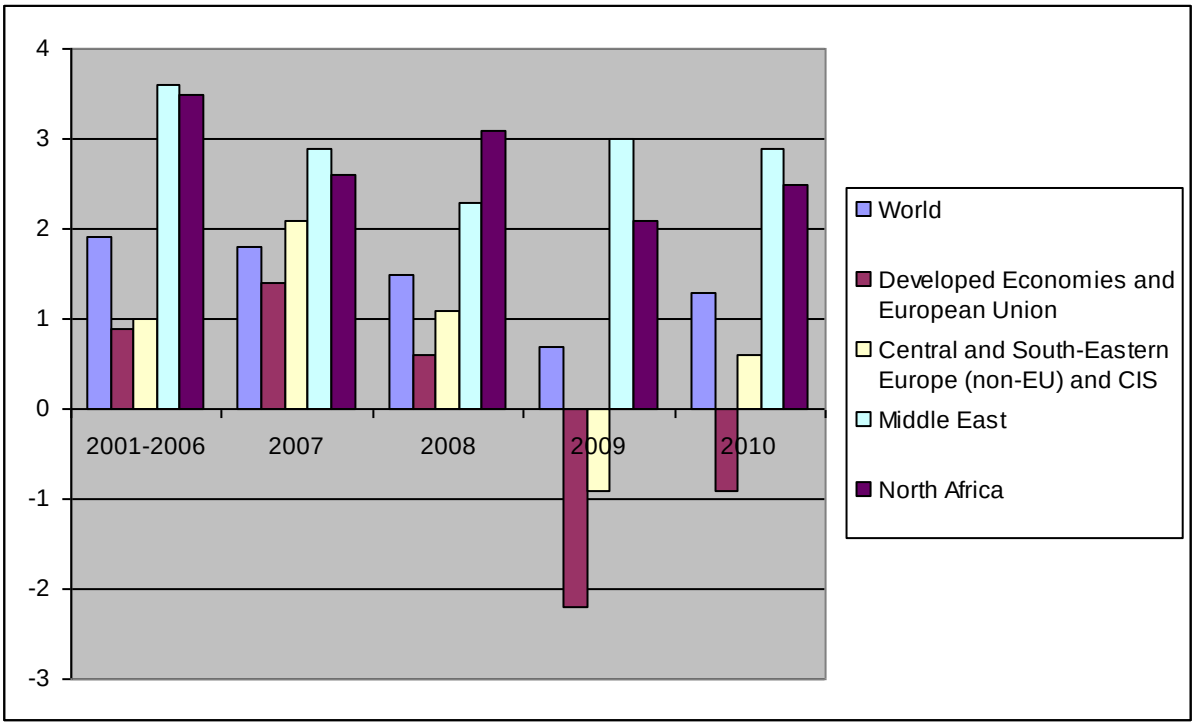
DE,EU = Developed Economies and European Union,
CSEE, CIS= Central and South-Eastern Europe (non-EU) and CIS,
ME = Middle East , NA = North Africa
* 2010 are preliminary estimates;
Source: ILO, Trends econometric models, October 2010; see also source of Table 4.

Table 3.4-3: Unemployment rate and Employment-to-population rate by sex, in ME = Middle East, NA = North Africa (%) Both sexes / Regions /Year, between 2000 – 2010

	2000 – 2010	
	Unemployment rate	Employment-to-population rate
Middle East	-0,3	0,6
North Africa	-4,3	2,7

DE,EU = Developed Economies and European Union,
CSEE, CIS= Central and South-Eastern Europe (non-EU) and CIS,
ME = Middle East , NA = North Africa
* 2010 are preliminary estimates;
Source: ILO, Trends econometric models, October 2010. Owned calculation based on the Table-4 and Table-5

Figure 3.4-3: Annual employment growth, world and regions (%), Regions /Year



* 2010 are preliminary estimates
Source: ILO, Trends econometric models, October 2010

Table 3.4-4: Annual employment growth, world and regions (%), Both sexes / Regions /Year, between 2000 – 2010

	2001-2006	2007	2008	2009	2010
World	1,9	1,8	1,5	0,7	1,3
DE,EU	0,9	1,4	0,6	-2,2	-0,9
CSEE,CIS	1	2,1	1,1	-0,9	0,6
ME	3,6	2,9	2,3	3	2,9
NA	3,5	2,6	3,1	2,1	2,5

* 2010 are preliminary estimates
Source: ILO, Trends econometric models, October 2010

Table 3.4-4A: Economic development and GDP per capita in Arab crude oil exporting countries in MENA region between 1975 - 2005

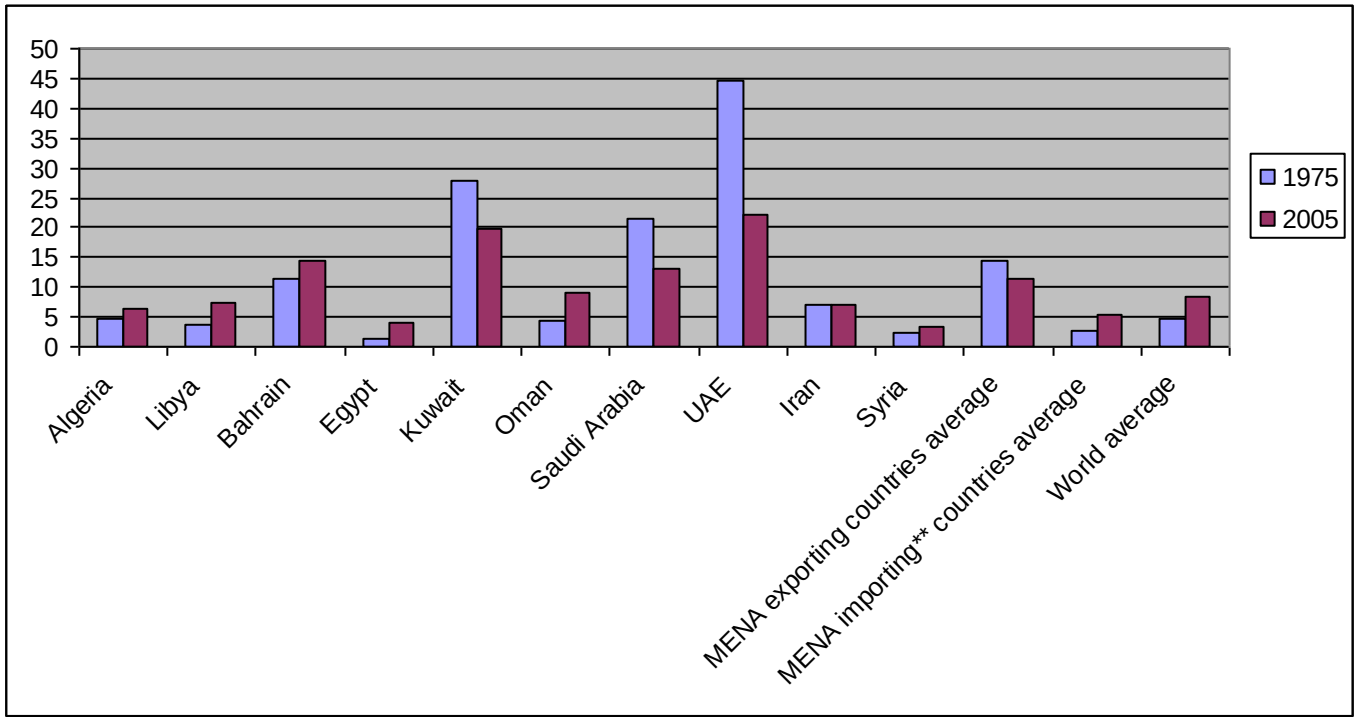
Countries	GDP per capita, PPP* in 2000 in US dollar			Human Development Index		Population 2006 Growth rate
	1975	2005	Average annual economic growth, in% 1975-2003	(HDI), 2005 Rank from 177 countries	Index	in %
Algeria	4,712	6,361	0,4	104	0,733	1,5
Libya	3,732	7,517	1	56	0,818	2
Bahrain	11,479	14,588	0,4	41	0,866	1,9
Egypt	1,504	3,985	1,4	112	0,708	1,8
Kuwait	27,761	19,791	-0,5	33	0,891	2,5
Oman	4,504	8,961	1,2	58	0,814	1,6
Saudi Arabia	21,591	13,175	-0,7	61	0,812	2,4
UAE	44,601	22,109	-1,1	39	0,868	3,5
Iran	6,985	7,137	0	94	0,759	1,5
Syria	2,404	3,437	0,5	108	0,724	2,7
MENA exporting countries average	**14,468**	**11,252**	**-0,4**		**0,799**	**2,1**
MENA importing countries average**	**2,753**	**5,321**	**1**		**0,728**	**1,5**
World average	**4,834**	**8,476**	**0,8**			**1,2**

* PPP = Purchasing Power Parity

**** Average for Jordan, Morocco and Tunisia**

Source: World Development Indicators 2007, Human Development Report 2007/ 2008

Figure 3.4-3A: Economic development and GDP per capita in Arab crude oil exporting countries in MENA region between 1975 - 2005

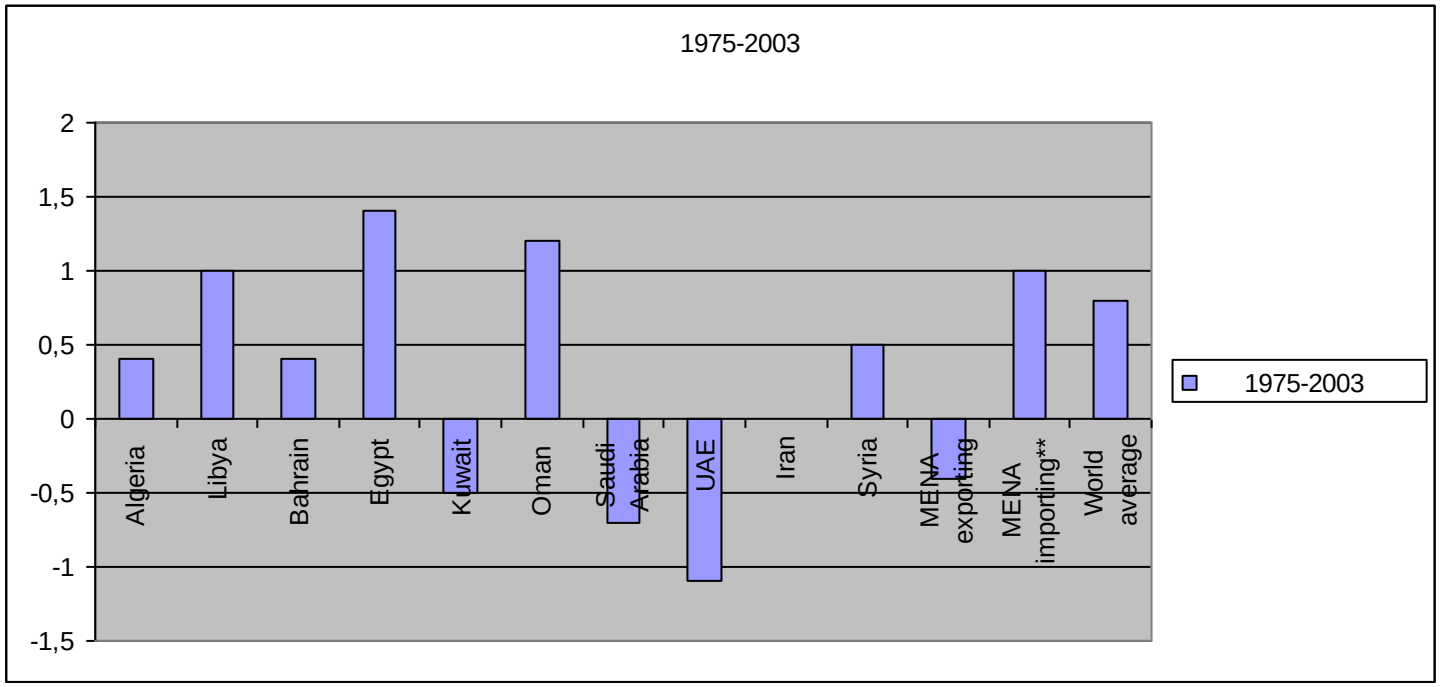


* PPP = Purchasing Power Parity

**** Average for Jordan, Morocco and Tunisia**

Source: World Development Indicators 2007, Human Development Report 2007/ 2008

Figure 3.4-3B: Economic development and GDP per capita in Arab crude oil exporting countries in MENA region between 1975 – 2005, GDP per capita, PPP* in 2000 in US dollar, between 1975-2003

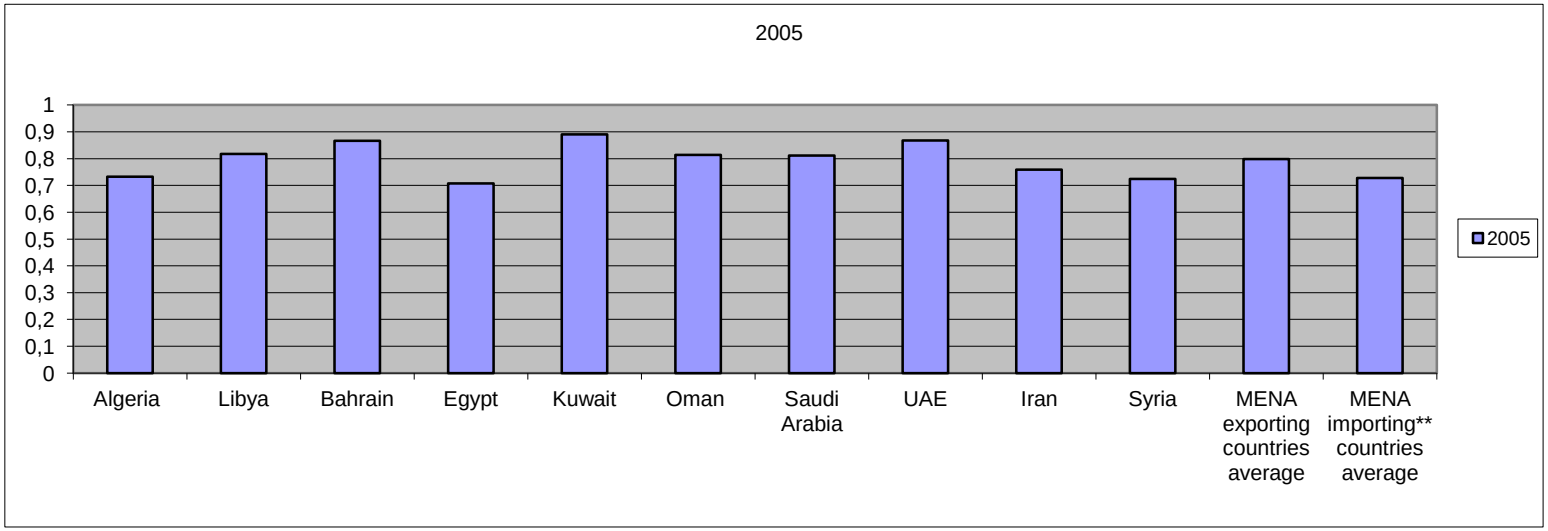


* PPP = Purchasing Power Parity

**** Average for Jordan, Morocco and Tunisia**

Source: World Development Indicators 2007, Human Development Report 2007/ 2008

Figure 3.4-3C: Economic development and GDP per capita in Arab crude oil exporting countries in MENA region between 1975 – 2005, Human Development Index, HDI, 2005



*PPP = Purchasing Power Parity
**** Average for Jordan, Morocco and Tunisia**
Source: World Development Indicators 2007, Human Development Report 2007/ 2008

Also the decline has been occurred by decreasing employment rate by less than half of results of 2008 in 2009, namely by 0,7%. For 2010 the annual growth could moderately balance the level of 2009.

Summary

In case of high developed countries the fluctuating growth was realised in field of annual employment growth, because in spite that employment growth has moderately developed for period of 2000-2006, namely by 0,9%, the employment growth has sharply declined by -2,2% in 2009 and also considerable decline was by -0,9% in 2010. This economic decline also shows that the global economic crisis has continuously influenced on the declining employment conditions. The global economic crisis accompanying with declining the employment growth resulted in the most negative effects and influences on increasing even the unemployment rate of young people in the world economy including first high developed economies. (see Figure 3.3-2, Figure 3.4-1 and Table 3.4-1A, Table 3.4-1B).

3.4.2 The economic growth and employment conditions in MENA regions

The Middle-East and North-Africa (MENA) have more favourable position in field of employment growth, because in spite that the world economic crisis pressed employment growth to decline in most of the world, the MENA regions could remain the considerable highly growth rate of the employment trend. This could be based on the earlier significant increasing crude oil price-income and financial reserves of oil exporting countries in these regions. Also crude oil exporting countries of MENA regions could decrease the employment level of foreign workers instead of national Arab human resources.

But here there is another problem, that some Arab oil exporting countries withdrawer the Arab labour forces coming from neighbour Arab countries, as titled "foreign" one during the world economic crisis. For example in Libya and Saudi Arabia many Arab visiting labour workers lost their jobs and should return to neighbour Arab countries, for example Egypt, Tunisia, Algeria and Yemen. The jobs lost by Arab "visiting" workers coming from neighbour Arab countries weakened the Arab economic cooperation in field of flow of the Arab labour force between countries of MENA region, and also capital flow as salary sent by Arab "visiting" workers to their original Arab home land. For example there was statistical data, that salary sent by Arab "visiting" workers to their original Arab home land was about seven billion US dollar annually at the end of 1980s. Now there is no exact data about this kind of Arab capital flow in the Arab World.

By growing the employment countries of MENA regions could be successful to create economic growth, social stabilization for their economies avoiding their internal economic situation from most of influences of the world economic crisis. The North-Africa had little less annual employment growth than in Middle East in 2009 and 2010, but also this annual employment growth followed the stabile developing trends based on the continuous crude oil selling for the world market. If I would like to answer that the GDP growth can be realised independently of increasing employment we can understand that the GDP should be kept at 6% level in order to ensure jobs for growing young population based on the optimal exploitation of crude oil field according to economic situation in Saudi Arabia from 2006 (IMF, 2008a and 2008b). In Saudi Arabia for example the main issue is not that GDP growth

can be realised by increasing employment, but the GDP can grow by increasing crude oil optimal exploitation by 6% is needed to ensure more new jobs for young population.

The data of Table 3.4-4A and Figure 3.4-3A, Figure 3.4-3B, and Figure 3.4-3C make clear that the MENA exporting countries averagely – it means the crude oil exporting economies of MENA region – could achieved a negative trend for their economic growth for the period of between 1975 and 2005, and the average annual economic growth, in% was at level of -0,4% between 1975 and 2003 based on the GDP per capita, PPP (Purchasing Power Parity) in 2000 in US dollar. These data collection include results of Algeria, Libya, Bahrain, Egypt, Kuwait, Oman, Saudi Arabia, UAE (United Arab Emirates), Iran and Syria. From these countries, Saudi Arabia, Kuwait and UAE have lowest level of Average annual economic growth, in %, between 1975-2003. Because of the world crude oil market was so highly conjecture between 2004 and 2008, this optimal situation stimulated the highly level of growth for MENA crude oil exporting countries. The average real GDP growth rate was 6,4% for MENA crude oil exporting countries, and about the same level was for GCC country-group in 2006, for example 6,3% of Kuwait, 10,3% of Qatar, 9,4% of UAE, 4,3% of Saudi Arabia. The international data base emphasized this economic growth, as the highest level in more than ten years (IMF, 2008). But this positive economic trend during this two year period could not equal the former negative trend before this one during almost twenty years. The large question is that how the Saudi Arabia and other crude oil exporting countries can be sustainable at the level of 6% of economic growth to ensure enough well faire and jobs for their increasing population for longer future time? (See in more detailed in Sénat, 2007).

Naturally these data are very behind the results of MENA crude oil importing countries between 1975 and 2003 concerning the economic growth of MENA crude oil importing countries, namely average annual economic growth of them was 1% between 1974 and 2003. This country group includes Jordan, Morocco and Tunisia. Based on the data it is clear that the economic decline has mostly been resulted by the considerable increasing demographic tendency in all of the MENA region for three decades from 1975 to 2005, namely the growing rate of the population was 2,1 per cent, as annual average in MEAN oil exporting economies, while the average population growth of the world was moderately, namely 1,2 per cent. This data emphasizes that the countries of ME (Middle East) reached the level of growing population rate, which was among the highest population growth level countries in the world. The average population growth rates between 1985 and 2006 were *5,4* per cent for the United

Arab Emirates and 3,6 per cent for Kuwait (excluding 1991-1995 Kuwait). The population growth of Saudi Arabia has far outpaced the growth of its economy, and the level of oil reserves relative to population dropped from 16.000 barrels in 1983 to 11.000 in 2006. Disappointing growth performances reveal the failure of many oil-rich governments to promote long-term economic policies that support these dynamic demographic trends (Kaufman, et al, 2008; Fonda, 2006).

Concerning social indicators, the Human Development Index (HDI) shows that development levels are relatively high in GCC (Gulf Council Countries) countries, due to the cohesive system adopted by governments. However, the comparison of development performance with economic prosperity reveals significant shortages in social policies concerning the sectors of health and education (components of the HDI). In order to evaluate the efficiency of social policies, the United Nations *measures the difference between the country's wealth and the actual development of its human resources* (since countries with similar income can have very different HDI values). Most MENA oil-rich countries have large negative values for GDP per capita (PPP$) rank minus HDI rank (Algeria (-22); Iran (-23); Saudi Arabia (-19); Qatar and the United Arab Emirates (-12) and Oman (-15); (Human Development Report, 2007/2008; http://hdr.undp.org/en/). These negative results suggest that these countries have failed to translate their economic prosperity into correspondingly better lives for their people and positive social development. On the other hand, some oil-poor MENA economies, like Jordan (+22), for example, realise a positive figure, which shows that income was converted into economic development very effectively. The IMF provided statistical data about that the favourable conjuncture of the oil market between 2004 and 2008 generated high growth rates for MENA oil-exporting countries. The average real GDP growth rate reached 6.4 per cent for oil exporters in the MENA region and 6 per cent for GCC countries in 2006, namely 6.3 per cent for Kuwait, 10.3 per cent for Qatar, 9.4 per cent for the United Arab Emirates and 4.3 per cent for Saudi Arabia. These growth performances were among the best in more than ten years (IMF, 2008a, 2008b).

The MENA oil exporting countries surfaced several challenges by the end of 2010. The Saudi Arabian governmental offices needed that a considerable economic growth as much as 6 per cent in order to supply enough number of jobs for growing young population, as he Saudi Arab statistical data declared more than half of the population is less than 25 years old. According to Cordesman A. H. - Al-Rodhan, K. L. (2006), the rate of unemployment is

estimated at about 8-13 per cent for Saudi males in 2004-2005, 16.6 per cent for males aged between 20 and 29 years old. The maintaining of a high fertility rate (5.3 births per woman in Saudi Arabia) and the population increase will certainly have dramatic implications on its labour market and educational system, as well as on the size of future affordable subsidies. In Bahrain, unemployment is estimated at between 12 per cent and 18 per cent of the workforce, due to the entry of many youths into the labour market. (Cordesman - Al-Rodhan, 2006).

From point of view of general economic trends in MENA region, there is another difficulty, which MENA region challenge. The main problem is that there is not set up on the vertically integrated product channel from fields of crude oil in MENA region to consumers mostly living in highly developed economies. Because there is not a vertically integrated product channel based on the unified ownership with one owner or one owner group in the world economy, so this results in that all of the steps of product channel can be controlled by governments of highly developed economies for example by through of imposing taxes at each level of product channel of crude oil and oil products, except the basic mining crude oil in oil fields.

The valued added of each level of product channel of crude oil and oil products, and additionally to this one, value added taxes are for income side of balance of governmental budget in the highly developed economies (see in detailed in Sénat, 2007). Levels of product channel of crude oil and oil products are transport, storing, refining, manufacturing, and ensuring the energy resource from oil, and distribution to consuming companies and population. The governments of the highly developed economies use this tax system to get tax-incomes as much as consumption of crude oil and oil products, namely highly manufactured products and to make customers moderately consume oil products, also as energy resource, in order to decrease crude oil import and create the positive balance of foreign trade and payment belonging to highly developed economies. Additionally to the difficulty of the product channel in MENA region, there are some other economic difficulties concerning the *investments, and population consumption coming from crude oil income, and over used amount of crude oil income the capital outflow issue* from the Arab World or MENA region.

3.5 The gas emission in environmental pollutions and as externalities in point of view of economy

At present economic and social development the environmental conservation strategy and principles became leader conceptions for economic growth of the economies at macro-economic level and for the corporate governance and business management of firms and corporations at micro-economic level. The environmental conservation strategy and principles from sides of the world economy and national individual economies should be integrated and harmonized in order that the mankind decreases the negative influences of human activities based on the international organizations, like UN (United Nations), regional economic integrations, like EU (European Union), individual economies' growth, international economic co-operations or economic activities of transnational corporations. This last one is also important, because first they develop new highly advanced technologies, know-how, licences, which later on will extent into the whole world economy, and their new technologies become basis for the new qualified assurance system for the production should be followed by all companies, and finally these one will be built in the law of economies and law harmonization of international integrations.

The gas emission problems were analysed within research works, which emission resulted in increasing global warming at more highly level. Actually more developing countries can only realise their economic growth by through of increasing gas emission because of using more volume of fossil energy resources. In the Dissertation I can show some main results of the gas emission difficulties by through a trend from beginning of 1970. This trend also emphasizes how the human activities can increase the pollution for natural background environment with increasing gas emission.

To study the CO_2 gas emissions of separated special regions of the world we have applied *Principal Component/Factor Analysis*. The main questions of the investigations were as follows:

- are there similarities/correlations in the trend of the CO_2 gas emissions of the regions,
- which are the similar regions and how can we cluster them,
- what are the trends of the CO_2 gas emissions of the clusters of the regions,

- are there significant differences in the quantity of the CO_2 gas emissions between the clusters?

Results of *Principal Component/Factor Analysis* can be seen below (Table 3.5-1, Table 3.5-2).

In case of *Principal Component/Factor Analysis* we calculate the *eigenvalues* (λ) and *eigenvectors* ($\boldsymbol{u}$) of the $\boldsymbol{R}$ correlation matrix according to the equation

$$\boldsymbol{Ru} = \lambda \boldsymbol{u}\,.$$

The *eigenvalues* are the *variances of the common factors* in fact.

The elements of the *eigenvectors* are the *coefficients of the factors* giving the value of the influence on the original variables.

In our case therefore the *variance* of F1 is λ_1=7,2362 and the *coefficients* of F1(the elements of $\boldsymbol{u}_1$) can be found under F1 in the table. Consequently the *variance* of F2 is λ_2=1,4757 and the *coefficients* of F2 (the elements of $\boldsymbol{u}_2$) can be found under F2 in the table etc.

The factors having variances greater than 1 are only significant, others can be left away. Therefore we have now the first two variables significant. Cumulative percentage of the first two factors in the third row now 96,8% (0,968), which means that the first two variables together explain 96,8% of the total variance.

By the help of the coefficients we can conclude that F1 has a relatively great influence on `OECD total, Middle East, China, Other Asia, Latin America and Caribbean, Africa` and `Bunkers,` this fact can be seen on *Figure 3.5-1* of loadings too. These regions of countries form a similar or in other words correlating group (cluster) of regions as for CO_2 gas emission. They are similar in the sense that the trend of the CO_2 gas emissions is the same for them. As it can be seen from *Table 3.5-1* of raw data it has an *increasing* tendency. But it is important to see that the speed of this increasing is rather different!

By the help of the coefficients for F2 we can conclude that it has a great influence on Former USSR and on Non-OECD Europe regions of the countries, consequentially these regions of countries form another similar or in other words correlating group (cluster) of regions as for

CO_2 gas emissions. We can call this group (cluster) of regions and the corresponding factor *Soviet Block Factor*, and then the former one can be called *Non Soviet Block Factor*.
The two factors and consequentially the trend of the CO_2 gas emissions in the two different groups (clusters) of regions are independent from each other.

The existence of these two different groups (clusters) of regions can be proved by the help of *hierarchical clustering* of the variables (regions) as well. (see *Figure 3.5 - 2*.)

By the help of the *Principal Component/Factor Scores* (see *Table 3.5 - 3*) we can observe the trend of the CO_2 gas emissions in the two different groups (clusters) of regions. This can be seen on *Figure 3.5 - 3*.
First of all we can recognize an unambiguous and continuous *increasing* of the CO_2 gas emissions in the *Non Soviet Bloc* countries (see also original raw data). However the *rate* of this increasing tendency is *different* region by region!
Remember the first factor on the horizontal axis is the *Non Soviet Block Factor*!

It is more interesting the trend of the gas emissions in the so called *Soviet Bloc* country regions. On *Figure 3.5- 3* one can recognize that *till the collapse* of the communist world (1989) the CO_2 gas emission is *increasing*, but after the *Soviet Block* going to pieces this was changed into *decreasing* tendency till more or less 1999. It needed exactly *ten years to turn back* this tendency again. Remember the second factor on the vertical axis is the *Soviet Block Factor*.

On *Figure 3.5-4* of *Biplot* one can see together what have been said before about the connections between the two different groups (clusters) of regions and the trend of the CO_2 gas emissions.

Finally what can we say about the last question: what kind of *differences* are there in the quantity of the CO_2 *gas emissions inside the clusters*.

First of all let's see the trend lines of the quantity of CO_2 *gas emissions* in the *Soviet Block* (*Figure 3.5-5*).

On *Figure 3.5-3* we could recognize that *till the collapse* of the communist world (1989) the CO_2 gas emission was *increasing*, but after the *Soviet Block* going to pieces this was changed into *decreasing* tendency till more or less 1999.

From *Figure 3.5-5* it is obvious that this is much more characteristic in case of the former *Soviet Union* then in the *Non-OECD Europe* countries. The CO_2 *gas emissions* of the Eastern European countries have the *same tendency*, but are *more stabilized*.

Even there is a huge *difference in the quantity of the emission* between two regions, in the former *Soviet Union* it is approximately nine times more than in the *Non-OECD Europe* countries.

To have a more clear idea in the relations of the *Non Soviet Bloc* countries, from *Figure 3.5-2* we have separated their part on the dendrogram.

The dendrogram of *Non Soviet Block* regions can be seen on *Figure 3.5-6*.

Cutting the dendrogram at about 99% similarity level we can distinguish the „*Developing World"* cluster: `Middle East, Africa, Other Asia, Latin America and Caribbean,` and `OECD total, China, Bunkers` as separated regions (clusters) within the *Non Soviet Block.*

Analysing the correlation matrix of the variables (similarities of the regions) and the dendrogram at the same time we can conclude that the correlation is the strongest between `Middle East` and `Africa,` the second strongest between `Middle East` and `Other Asia,` the third between `Other Asia` and `Latin America and Caribbean,` and the forth between `Other Asia` and `Africa.`

				r
Afr	**-**	**Mid E**		**0,99517**
		Mid E	**-** **OtherAs**	**0,99444**
			OtherAs – LatinA	**0,98758**
			OtherAs – Afr	**0,98627**

Within the „*Developing World"* cluster the trend lines of Middle East, Africa, and Latin America and Caribbean have quite similar *growing tendency* (see *Figure 3.5-8*), but in Other Asia the *growing rate is much higher*.

The separated regions (clusters) – OECD total, China, Bunkers – within the *Non Soviet Block* are *different in growing rate* and in the *quantity of the emission* too.
At present many kind of studies in environmental economics appeared following those industrial organizations comprehensive analysing the influences of environmental regulations on technological change based on the strategic interactions of the firms or corporations.

Also it is very difficult to provide generalization, and important proposals, suggestions including background scientific information for policymakers in direction to solve increasing pollution difficulties in cost-effective relations in case of governmental state policy or private companies, and to decrease the gas emission, as an important resource for the air pollution.

The companies make large influences on fields of environmental economic activities with those in industrial companies to obtain better understanding possibilities of industrial growth and its influences on the performance of environmental regulations. The importance of innovation and technical change in the development of environmental regulation systems becomes more considerable. This opinion also connects with works of other experts, namely Lee, K. T. (1986), who wanted to attain a more complete understanding of research and development activities, it is necessary to move beyond firm-level analysis and consider how firms interact with each other. Because research and development processes are quite complicated, theoretical analyses of research and development investments have tended to concentrate on only small parts of the process. Previous studies have typically focused on market power and heterogeneous firms.

My opinion that the firms should cover their expenditure for increasing use of innovation and improvement to decrease the pollution of environment by through of three ways:
.- firms increase the market price of their outputs, which effect on the general market prices of those products produced by new advanced environment friendly technologies decreasing pollution; but this situation can make influences on the increasing market prices of more scale of products made by even non-decreasing pollution technology; or

.- firms can obtain financial supports from governmental budget to cover the plus production expenditure resulted by using technologies decreasing pollution;

.- firms should use the new advanced environment friendly technologies decreasing pollution, because the regulation demands introducing these one from the firms, or otherwise firms should pay punishment or taxes, as higher one than expenditure of using new environment friendly technologies.

Table 3.5- 1: CO_2 gas emissions raw data of the World region by region

	OECD total	Middle East	Former USSR	Non-OECD European	China	Other Asia	Latin America and Caribbean	Africa	Bunkers
1971	9336,7	126,54	1995,84	247,348	809,55	434,01	365,96	266,225	512,86
1972	9761,7	139,09	2115,99	253,680	861,91	455,40	382,34	275,253	538,39
1973	10295,9	158,46	2255,27	270,928	895,86	476,73	423,31	297,037	566,38
1974	10089,2	170,91	2381,95	277,859	915,39	499,58	438,19	308,405	532,95
1975	9765,9	189,64	2567,90	294,813	1062,01	533,56	442,63	333,032	501,16
1976	10338,4	209,05	2659,08	309,987	1105,46	564,85	469,16	359,644	511,78
1977	10593,4	238,28	2728,61	324,905	1249,85	597,67	487,27	371,996	527,03
1978	10741,7	260,91	2862,96	349,277	1410,09	624,95	511,89	361,312	535,42
1979	10997,0	317,45	2947,97	361,728	1431,49	673,70	543,11	382,503	552,60
1980	10657,1	342,14	3056,04	358,807	1419,97	720,10	547,03	409,137	544,51
1981	10390,3	372,03	3043,47	365,305	1407,51	757,16	536,41	430,375	518,58
1982	10043,2	414,50	3081,31	370,734	1466,36	790,32	534,85	439,395	493,16
1983	9970,1	457,84	3111,98	382,624	1541,17	834,17	522,70	448,288	475,27
1984	10294,9	466,25	3150,72	378,701	1679,19	877,07	527,61	466,173	486,53
1985	10387,6	488,58	3197,54	387,263	1726,78	920,34	526,42	477,678	515,49
1986	10392,5	504,38	3274,66	400,152	1830,82	976,66	557,95	482,579	556,68
1987	10634,9	533,44	3382,01	406,707	1969,41	1039,59	576,31	511,350	565,96
1988	10955,2	559,23	3440,98	415,944	2117,98	1111,61	597,40	523,026	596,36
1989	11108,4	588,02	3458,02	412,524	2198,93	1181,32	612,95	540,569	609,88
1990	11072,6	588,19	3653,09	382,861	2244,01	1279,08	604,06	546,200	610,48
1991	11106,0	617,53	3595,65	318,018	2360,50	1359,41	616,31	554,776	617,35
1992	11137,3	670,74	3219,23	289,248	2468,22	1414,64	631,12	567,339	648,62
1993	11224,5	712,52	2890,71	274,311	2669,67	1492,13	654,44	570,218	642,15
1994	11417,9	774,98	2536,93	253,446	2781,11	1570,55	685,58	571,422	662,33
1995	11574,5	800,71	2440,45	265,413	3021,78	1694,15	727,47	599,514	686,41
1996	11945,0	834,52	2334,60	280,301	3195,45	1800,88	779,57	618,350	703,20
1997	12122,5	860,56	2183,90	277,563	3132,94	1905,35	822,40	646,232	732,77
1998	12097,2	898,45	2170,97	264,947	3197,15	1915,91	854,45	668,665	744,87
1999	12168,9	932,09	2188,42	228,978	3090,22	2040,82	848,16	668,809	787,22
2000	12492,2	975,09	2222,69	236,492	3077,57	2128,25	866,64	688,282	810,08
2001	12526,9	1008,36	2231,78	248,604	3124,78	2187,10	872,78	688,319	775,36
2002	12520,2	1061,72	2237,21	249,855	3348,26	2260,81	867,89	726,126	795,33
2003	12755,0	1100,52	2324,08	265,671	3871,79	2345,84	870,58	765,979	810,82
2004	12886,6	1177,96	2298,68	264,505	4586,42	2507,75	921,19	803,160	889,75
2005	12922,2	1236,19	2310,62	258,240	5099,05	2608,37	943,56	827,954	940,77
2006	12865,6	1308,67	2396,05	266,874	5645,23	2739,46	978,33	846,988	980,75
2007	13000,8	1388,95	2411,59	271,506	6071,23	2898,38	1015,98	881,968	1022,03

Table 3.5 - 2: Variances and coefficients of the common factors

Principal Component Analysis: OECD total; Middle East; Former USSR; Non-OECD Eu

Eigenanalysis of the Correlation Matrix

Eigenvalue	**7,2362**	**1,4757**	0,1182	0,0907	0,0578
0,0115					
Proportion	0,804	0,164	0,013	0,010	0,006
0,001					
Cumulative	0,804	**0,968**	0,981	0,991	0,998
0,999					

Principal component (factor) coefficients

Variable	**F1**	**F2**
OECD total	**0,361**	0,068
Middle East	**0,363**	0,151
Former USSR	-0,177	**0,699**
Non-OECD Europe	-0,217	**0,637**
China	**0,359**	0,138
coefficients=loadigns/stdev		
Other Asia	**0,369**	0,083
Latin America and Caribbean	**0,366**	0,095
Africa	**0,358**	0,208
Bunkers	**0,365**	-0,019

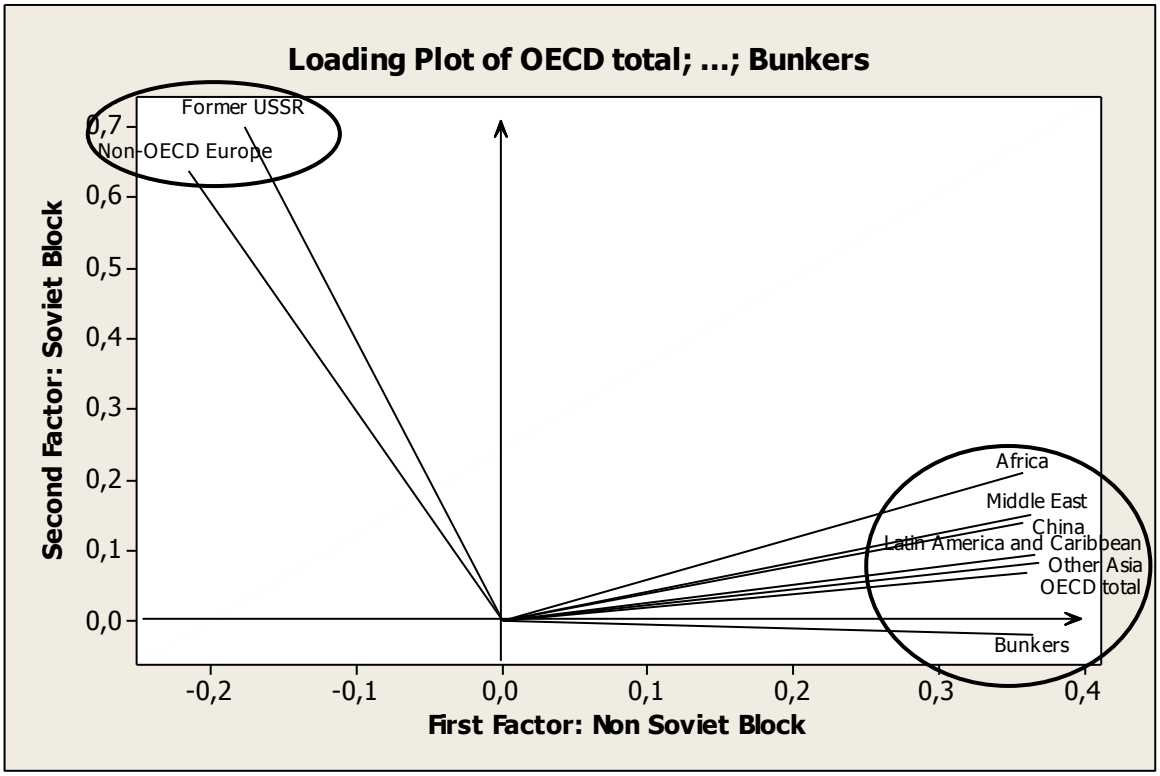


Figure 3.5- 1: Loading plot of the coefficients

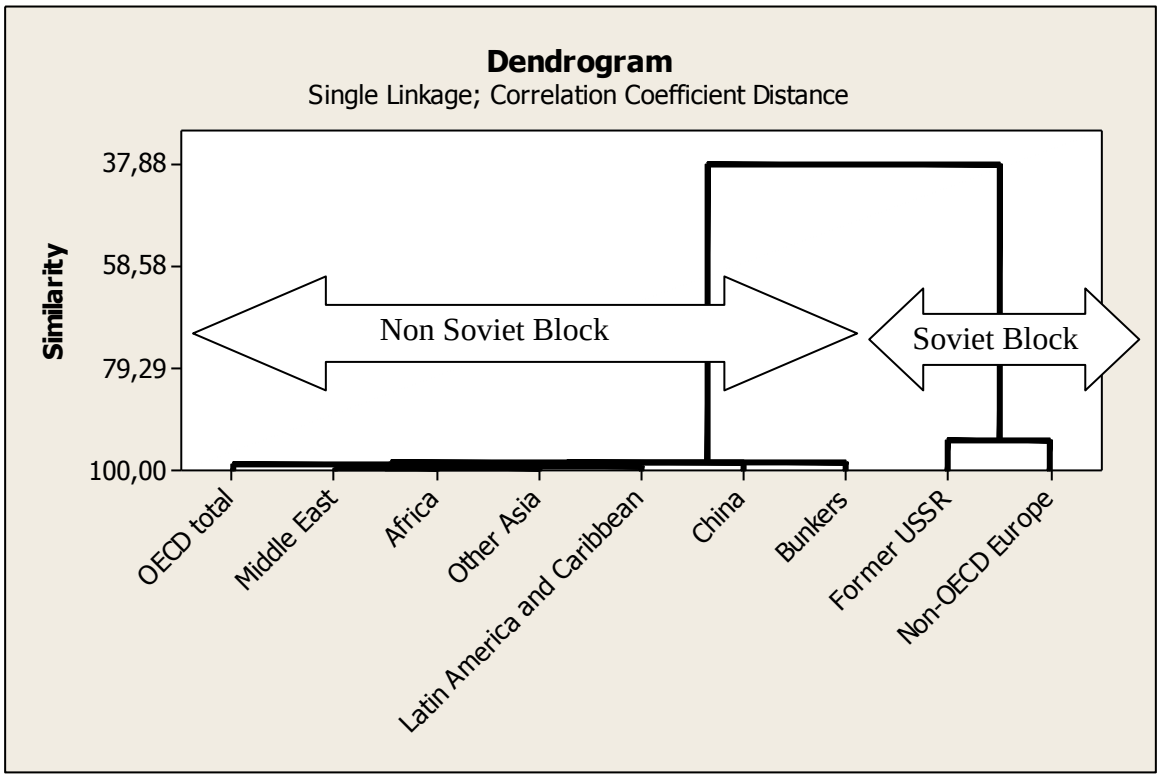


Figure 3.5- 2: Clusters of the regions

Table 3.5 - 3: Factor scores (coordinates)

	F1	F2
1971	-3,03416	-2,77750
1972	-2,80442	-2,47945
1973	-2,50066	-1,99952
1974	-2,64199	-1,71989
1975	-2,82442	-1,22623
1976	-2,53595	-0,83258
1977	-2,34506	-0,50111
1978	-2,30678	-0,00676
1979	-2,06034	0,33811
1980	-2,11591	0,49003
1981	-2,22101	0,56458
1982	-2,34462	0,69653
1983	-2,38827	0,90255
1984	-2,13494	0,98230
1985	-2,00219	1,17732
1986	-1,83022	1,46881
1987	-1,59275	1,78698
1988	-1,29602	2,04803
1989	-1,05076	2,10137
1990	-0,96825	2,07579
1991	-0,53691	1,34163
1992	-0,04061	0,54936
1993	0,33507	-0,01582
1994	0,85250	-0,67673
1995	1,25075	-0,57305
1996	1,67939	-0,44802
1997	2,08298	-0,61411
1998	2,32715	-0,70490
1999	2,63646	-1,05668
2000	2,92410	-0,84811
2001	2,89064	-0,66845
2002	3,15130	-0,55244
2003	3,49105	-0,11275
2004	4,27258	0,03250
2005	4,77162	0,10801
2006	5,18150	0,45825
2007	5,72915	0,69194

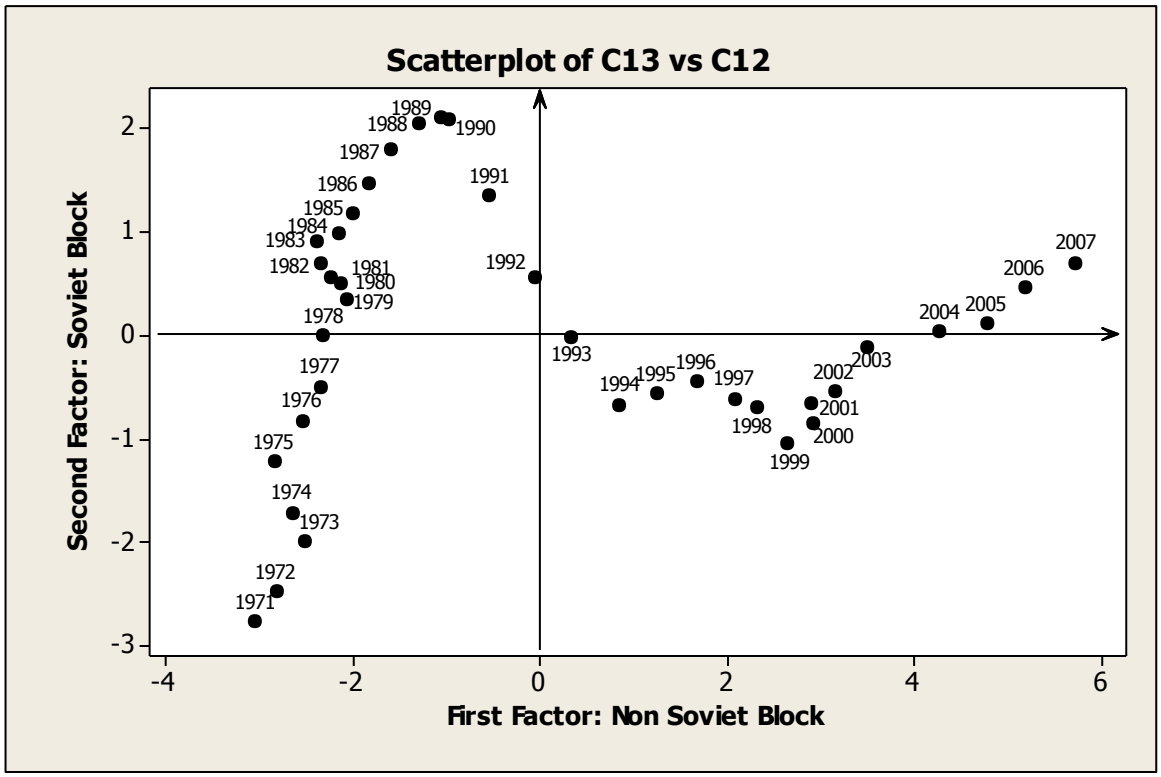


Figure 3.5-3: Changing tendencies of gas emission in the different clusters of the regions

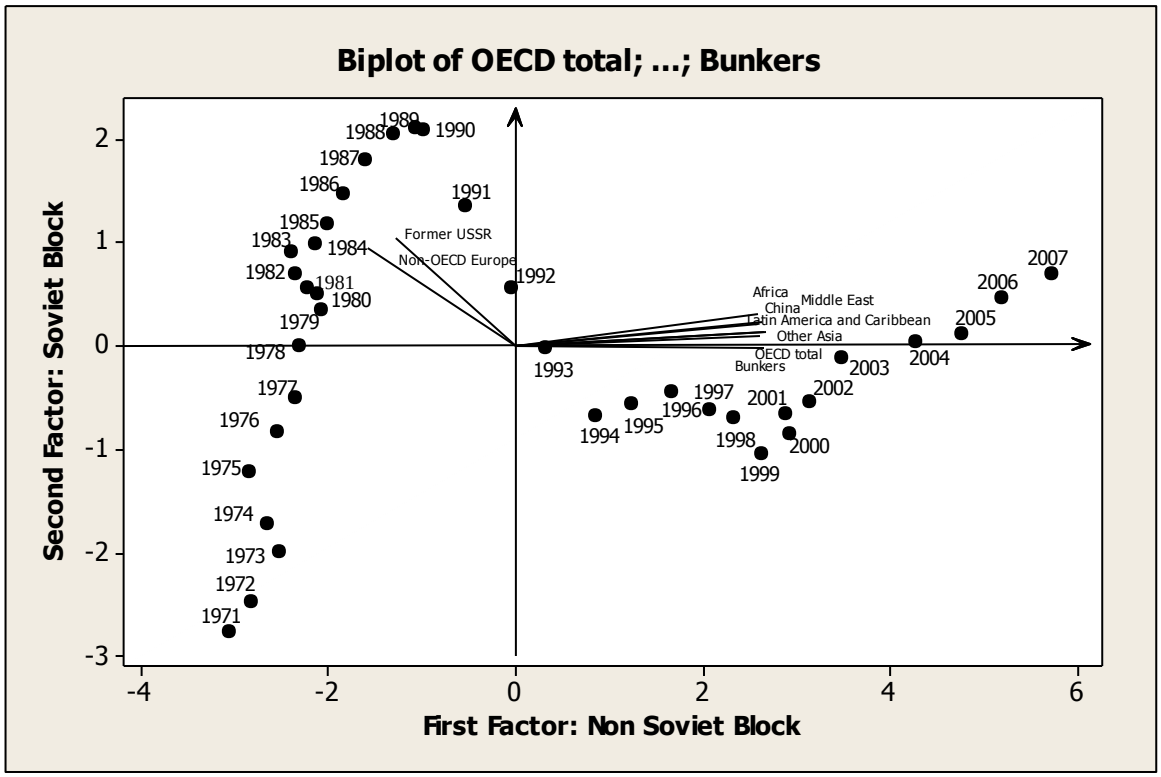


Figure 3.5- 4: Changing tendencies of gas emissions of the factors for regions

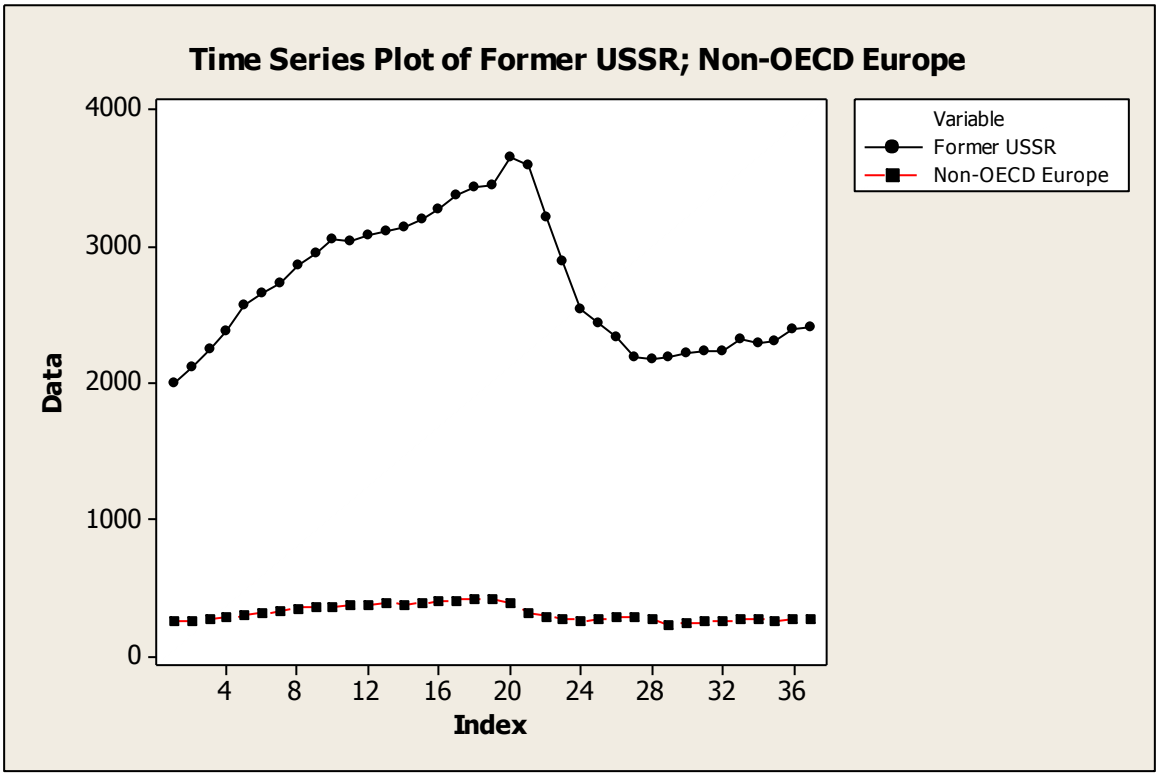


Figure 3.5- 5: Trend lines of CO_2 gas emissions of the Soviet Block

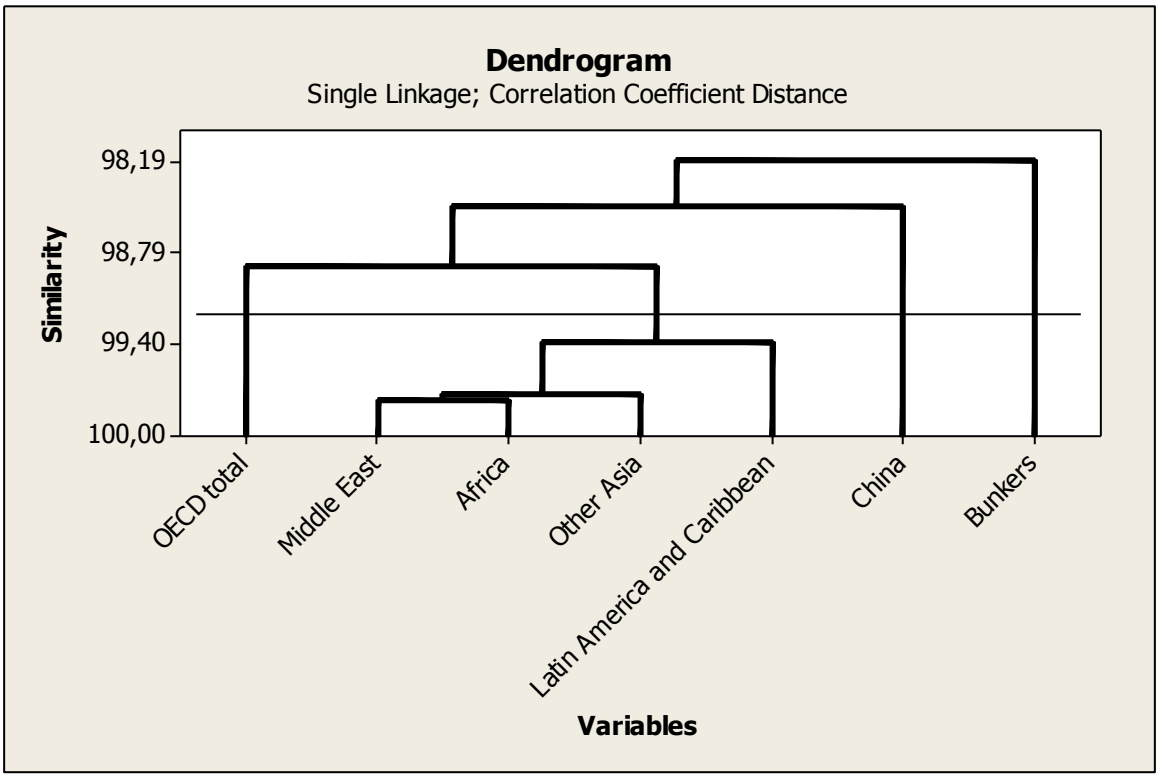


Figure 3.5 - 6: Dendrogram of the Non Soviet Block regions

Table 3.5- 4: Correlation matrix of the variables

	OECD	Mid E	FUSSR	NOECD	China	OtherA	LatinA	Afr	Bunk
OECD	1	0,95037	0,39161	0,49578	0,92099	0,96384	**0,977679**	0,94678	0,94616
Mid E		1,00000	0,31070	0,43135	0,96968	**0,99444**	**0,983666**	**0,99517**	0,94223
FUSSR			1,00000	0,87788	0,32063	0,38167	0,382325	0,24247	0,48450
NOECD				1,00000	0,42757	0,50681	0,473050	0,36999	0,58534
China					1,00000	0,96860	0,950487	0,96568	0,96268
OtherA						1,00000	**0,987588**	**0,98627**	0,96384
LatinA								0,97809	0,94930
Afr								1,00000	0,92764
Bunk									1,00000

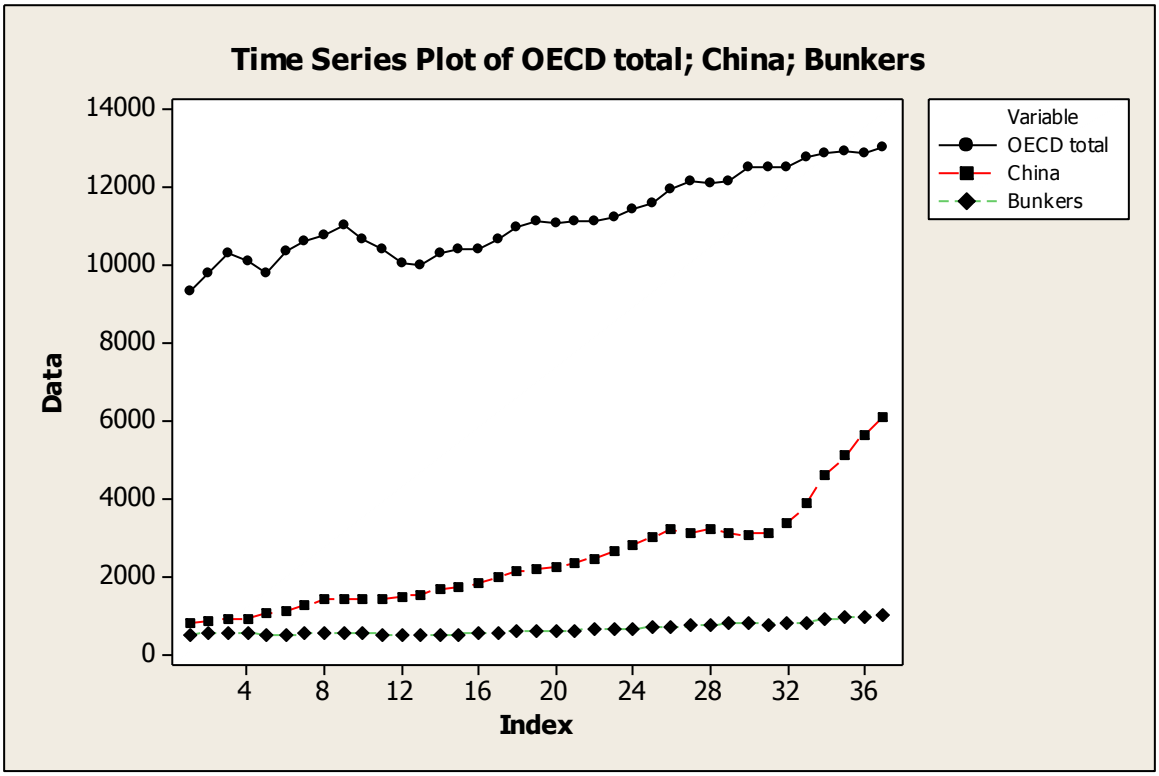


Figure 3.5- 7: Trend lines of CO_2 gas emissions of OECD total, China, Bunkers

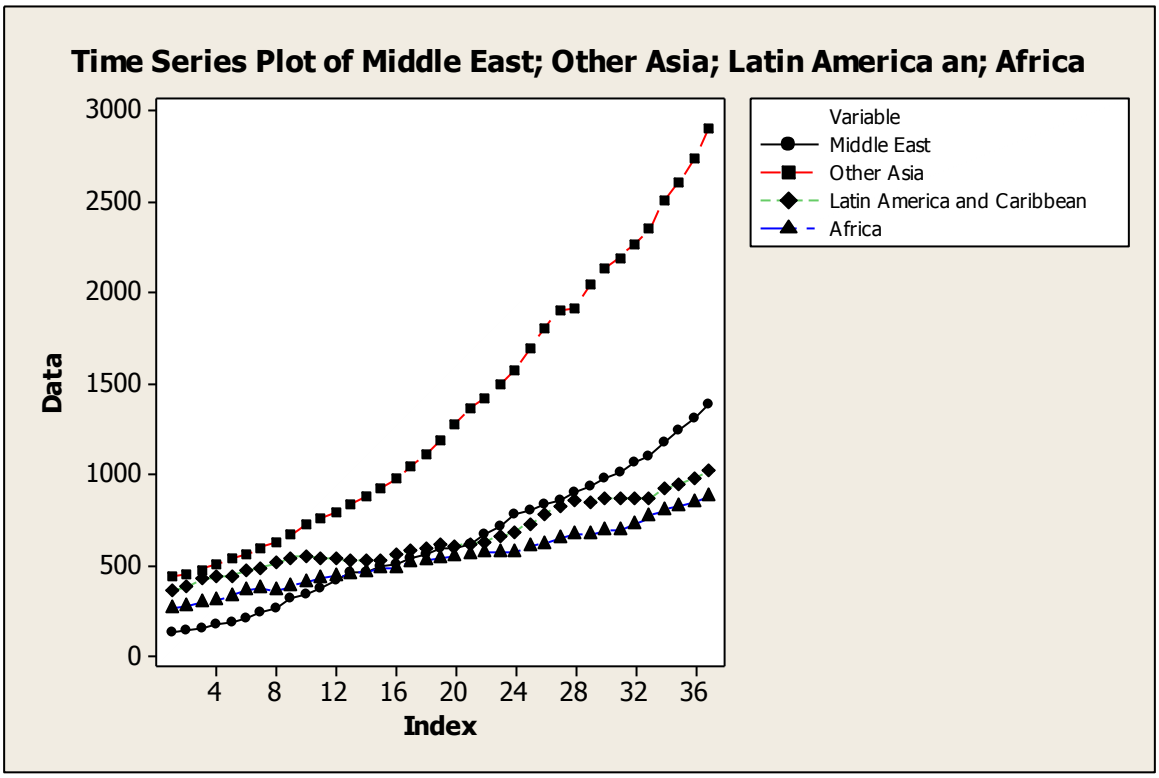


Figure 3.5 - 8: Trend lines of CO_2 gas emissions of the „Developing World"

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4 CONCLUSIONS AND SUGGESTIONS

4.1 Some conclusions for influences of changing economic structure on the economic growth of MENA region

Analysing the *influences of changing economic structure on the economic growth of MENA region* is concerning the several economic conditions, which are as follows:

.1- *Comparative advantages* from point of view of low level for the production cost in order to obtain competition position against the other participants, producers or suppliers on the world market.
.2- *Competitive advantages* should play considerable role from point of view of using advanced technology based on the qualified demands of the world market.
.3- *Production structure* concerning the economic structure consists of economic branches meeting:
.- first the world market demands and then
.- the local market demands.

The difficulties for the MENA region that their economic structure is very simply one side based on the mining sector mostly and there is no diversified economic structure. The diversified economic structure means that this should also include such other manufacturing industrial branches, which can supply completely the demands of local national markets, their inhabitants.

Also there are two kinds of other difficulties for the Arab World or MENA region including GCC, which are as follows:

.1- From inside of MENA region, that there is a one side economic structure. Countries of MENA region cannot create integrated economic units either at national economic level or at level of economic cooperation within the international economic work separation, as a form of the international regional economic integration for example in fields of production, final

product creation, financial and bank sector, create advanced technology and techniques, know-how, license and human resource development. The lack of economic integration means that the highly advanced technology is used only in one or two economic branches isolated from the whole national economic structure, and there is not work separation among sectors within economic co-operations.

Also the MENA region including crude oil exporting countries cannot have possibility to use or adapt the advanced technology created by the highly developed economies or OECD member states in wide side economic structure, because of MENA region including the GCC countries have one side economic structure, by the other name *"lack of economy"*. It means that they do not have diversified economic structure with different economic branches, which can ensure to supply the wide-side local market demands, local people's needs.

Also the problem that the Arab World's market – in spite that this can be titled as "large" one, but originally it is very isolated to many national markets, which in this case became real small one. Therefore the small Arab national markets are not adequate economic measure for using and adapting highly developed techniques and technologies, because this needs large production measure, but this cannot be used because of no large unified integrated measured national market.

Also in GCC to built factories for supplying local market demands is more costly than to buy imported products. In general the domestic production for suitable import products has not solved yet in the Arab World. This situation emerges the relative highly level of unemployment in the Arab World, MENA region, even in GCC and crude oil export countries. But these economies can balance this considerable unemployment level to pay quite high level of salaries for employed people, employees, and ensure fixed social network by for example *pension, scholarship* and *health care*. Almost this last one, the health care service is free of charge in most of the crude oil exporting countries. This financial issue can make social tension resulted by high level of unemployment be moderate.

Also there is a difficulty concerning *capital accumulation*, namely means that the domestic price level of the imported products is very high relatively of which world price level. This impact of the capital accumulation resulted by the economic situation, which are as follows:

Large amount of financial capital comes from crude oil selling, but the relatively less consumers, population living in crude oil Arab exporting countries result in that consequently each product has higher price, and almost the domestic price level can be higher than in Hungary. The higher cost labour force cannot be efficient because the highly cost labour force accompanies generally with high domestic price level in the Arab crude oil and oil product exporting countries. The general highly consuming price level of products make the every-day life be expensively.

.2- From outside of the MENA region from point of view of the world economy strengthening the world economic dependence of the MENA region, which consists of several elements, which are as follows, as main trends:

.-1- Export dependence for crude oil based on the one side export structure;
.-2- Import dependence, because of the luck economic structure;
.-3- Capital dependence, because of the Arab capital outflow, not vertically integrated product channel in non unified Arab national ownership from field of crude oil to consumers living in highly developed economies.
Arab capital out flow from the Arab World, MENA region, because of
.- import press results in increasing large import cost, imported products mainly come from highly developed economies;
.- luck of elements for industrial development;
.- Arab capital out flow for buying share of international corporations on the world share market to obtain ownership of the international corporations, mainly working out of the MENA region.
.-4- Technology dependence, namely highly developed technology is produced only in highly developed economies. Highly developed technology is needed for the crude oil mining sector, and only alone this sector and sub – manufacturing industry for crude oil sector can pay cost of highly developed technology and techniques, because this sector produces crude oil first for the world market and only after this the local national markets. The measure of crude oil production can be large as much as the world market needs.

What are the solutions for these above mentioned economic difficulties? What are the solutions for these difficulties? Some possible economic solutions can summarize:
.- Wide side cooperation among the crude oil exporting Arab countries.

.- Alternative energy resources .

.- Financial cooperation strengthened by the GCC by through of the OPEC, the Islam Arab Bank; and different national Arab Funds owned by Arab companies.

.-. Infrastructure development for MENA region

.- Extent the Arab national ownership in companies using highly developed technology and techniques.

Also there are difficulties for the MENA region, that the continuous economic development cannot be adapted only based on the crude oil income, because the international estimation the crude oil energy resource depletion will be about 30- 50 years dependently on each crude oil export country. The other difficulty is for the MENA region, which the sustainable economic growth needs to decrease the fossil energy resources to decrease the gas emission from point of view of environmental strategy.

The analyse of the Dissertation use data collection concerning the EU member states in order to show how the economic development trend of them as a possible example for the developing trends of MENA region. Also how the economic development difficulties can be managed in the EU, and how the compare can be realised between EU and MENA regions.

4.2 New scientific results

.1- The *GDP grow is not depend directly on increasing the employment level*. The GDP can grow in result of the crude oil world price, which can increase the annual value of GDP in case of OAPEC Arab countries. Also some Arab crude oil exporting countries introduced the advanced new technology into the crude oil mining industry, which ensures productivity production at higher profit level with less number of employees.
From one side the highly advanced technology ensures the increasing valued production without increasing number of employees, but from the other side the service sector cannot develop enough in order to get the plus human resources withdrawing from the mining sector. Finally the use of new technology is not accompanying with increasing the employed workers in the economy.
Also by the other hand the skills, knowledge, experiences of human power is not so highly developed, which result in some difficulties to extent the modern technology and techniques. But these unfavourable employment conditions also backward the technological development.

.2 – Because of the *inflation*, as general price increase in an economy gives the difference between the nominal and real prices of crude oil. The nominal price increase does not mean that the real price-income of crude oil also increases. So the nominal price increase cannot ensure real price-income and real export price-income for crude oil export in any case based on the purchasing power capacity for export countries. Mainly the *investment capacity* of Arab crude oil export countries depends on real export price-income for crude oil export and its purchasing power capacity for export countries.

.3- Based on the increase of the absorption capacity of the Arab national economies, *the positive balance of Arab capital outflow and foreign capital inflow-outflow* in MENA regions should be realised by extending infrastructure improvement, because the infrastructure wholly is background of production development of the Arab national economies with increasing share of highly developed *value added products* in GDP of Arab economies and *the positive balance of their foreign trade*.
.3.1 - Therefore the most successful and profitable or productively use and *investment* form of the Arab capital flow are in the Arab World or in the OAPEC Arab countries *in field of mining and manufacturing industries*.

.3.2 - The *Arab capital outflow* from the Arab world can be realised most successful in forms of

.- *transnational corporations* within the scheme of Foreign Direct Investment and

.- by through of *international financial organizations*, for example: International Monetary Found (IMF), World Bank (WB).

Also the more share of Arab capital should be used in the domestic economies.

.4- *Islamic Arab Bank (*IAB*)* is the most important Arab financial organization, which in a fact as Arab transnational corporation can work, responsible for the Arab capital flow within the Arab world or out of it's to the rest of the world economy. The *Islamic Arab Bank* is responsible for the successful Arab capital flow and successful using one within a *transnational corporation* system in field of investments mostly in mining industry.

Based on the cooperation and law harmonization among the Arab countries the IAB mostly does not calculate interests for the credit of IAB, in order that the IAB can decrease the expenditure of its investments in the Arab world by through of mostly detailed interest of Arab capital credit.

5 SUMMARY

As the title of the dissertation, namely: “Influences of changing economic structure on the economic growth”, determines the main aim of research, that changing economic structure has considerable influences on the all economic growth, so in this case the study focuses on the changing economic structure based on the separation of human resource and other production inputs among the economic sectors.

The dissertation overviews first the EU economic developing trend concerning the describing performance of EU economic and using international analyse the main country groups including MENA region. Also the study emphasizes for example people at-risk-of-poverty or social exclusion in EU; economic growth in field of GDP; efficiency of labour force; capacity for investments to increase workplaces, jobs at first for local national human resources to extent the national internal markets and to increase the import and create the export capacity based on the export orientated economic growth.
The study provides some exact examples in case of economic and social development conditions including labour force markets and in EU and MENA regions and also in fields of gas emission issues accompanying with the economic development trend by the international economic compares.

Also the MENA region in their economic development trend should follow the *Comparative advantages* from point of view of low level for the production cost in order to obtain competition position again the other participants, producers or suppliers on the world market; the *Competitive advantages* should play considerable role from point of view of using advanced technology based on the qualified demands of the world market; and creating such *Production structure* concerning the economic structure consists of economic branches meeting: first the world market demands and then the local market demands based on the sustainable economic growth with using alternative energy resources and following the environmental conservation strategy by using less energy resources resulting gas emission. Any way the MENA region with creating diversified economic structure should be integrated into the world economy wholly.

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