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Integration, Productivity and Innovation In the Eastern European Economy

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1. Introduction

European Integration and catch-up process is a concept which has been widely used in the past 50 years, since the European Union has been formed after the Second World War and when nations such as Italy, France and Germany had as objective to reach the same economic standards as the United States. Today the European Union is formed by 28 member states, and the process of Enlargement is still taking place today with several countries in Eastern Europe applying for membership. In this paper we will focus on the nations in Eastern Europe which have already entered the European Union between 2004 and 2007, in which the EU opened the doors for the first time to the former Soviet Union states, which until 1990 were still under communism and didn't have democracy. Since these countries gained independence after the collapse of the Soviet Union, most of them decided to look towards Europe and all of the Western Economies and to adopt their democratic systems following that model. Following this, in order to enter the European Union, they were obliged to apply a series of reforms regarding both economic aspects and humanitarian aspects, which we will also discuss in this paper. But this won't be the main topic we will cover. Our analysis concerns how these countries are performing today, and what are they're further objectives to reach the same levels of income and GDP of the rest of the European Union, and the objectives outlined by the European Union in the Europe 2020 growth strategy. Finally we will analyze the performance of one nation in particular, Poland, who has a very ambitious growth plan and expects to catch up even more with respect to the rest of the European Union. This way we can measure how effective European Policies are for this nations, and try to understand how much all of these nations have benefitted from entering the European Union, which have allowed their citizen's to move and work across Europe without any permits, allow each country to trade with one another without paying any tariffs and many other advantages that we will analyze in this paper, such as the funds received in order to make investments promoting development. All of these nations receive funds every year aimed at promoting Research and development, Innovation and all investments and projects aimed at creating employment and growth in the

long term to all of these economies. It is therefore important to understand all the aspects taken into account in this process to see how both New members and Old members are performing and are expected to perform in the following years.

2. Introduction to the European Union and Catch-Up process

2.1. Convergence Process

The current convergence process in the European Union has begun in 2004 with the entrance of 10 new member states in the European Union, Slovenia, Czech Republic, Slovakia, Latvia, Lithuania, Estonia, Poland, Cyprus and Malta. Except for the final two states, all of these new member states have come to democracy after the breakup of the Soviet Union and have come a long way in order to enter the European Union. This analysis though will not be based on the similarities with the previous convergence process, which took place in Italy France Germany and other Western European states in the 1960's, but to understand what these nations are doing in order to be more productive and innovative, which should allow them to have an increase in economic growth. In order to enter the European Union these nations were obliged to undertake several structural reforms in order to be more competitive in the markets and attract new investments in order to increase productivity and employment. But the catching-up process of these countries towards knowledge-based economies is a much slower and complex process. While "cohesion countries" mostly refer the European Member States that are fully eligible for the use of EU structural funds for the period 2007 – 2013; the "catching-up" countries reflect a broader range of areas in which less developed Member States try to reach the objectives set by more developed Member States. One of the main features about the catching-up countries is the lack of technological competencies. Therefore technological progress in these countries occurs mainly through the adoption of pre-existing technologies that are new to the country or to the company into which they are transferred.

2.2 Transition from planned to market economy

The majority of the new member states of the European Union are transition countries both politically and economically. Their economic systems have gone through a process of transformation of from planned to market economies, while their political systems from communist ones to democracies of a capitalist-type. The long-term goal of transition is to build a market economy capable of delivering long-term growth and living standards. Transition means dismantling one system and replacing it by another, which means that fundamental reforms must penetrate to the rules of the economy and society as a whole as well as to the institutions that shape behavior and guide organizations.

From the point of view of this Report, there are three main channels through which the EU integration process has influenced the catching up process of new member states. The first channel refers to the continued commitment of new members to the reform process. This commitment is reflected through the Lisbon strategy / National Reform Programs post-accession on the basis to make Europe one of the most competitive and knowledge based economy in the world. The second channel is the EU budget, through pre-accession funds in the period prior to a candidate country's accession to the EU and through structural funds, and other funding sources in the period of full membership of these countries. The third one is their integration into the single European market, therefore to be integrated in the European trade market area.

2.3 The Copenhagen Criteria

In June 1993, the European Council at Copenhagen officially opened to the enlargement of the European Union to the countries who were previously under the influence to the Soviet Union, stating that¹:

"The associated countries in Central and Eastern Europe that so desire shall become members of the European Union."

The membership conditions were also defined, the so-called Copenhagen criteria in which, membership requires that the candidate country ensures:

- Political Criteria

"Stability of institutions guaranteeing democracy, the rule of law, human rights and the respect for and protection of minorities"

- Economic Criteria:

"The existence of a functioning market economy as well as the capacity to cope with competitive pressure and market forces within the Union"

This criteria is consistent with the principles for economic policies as enshrined in the EC Treaty by the Maastricht Treaty that entered into force on 1 November 1993.

- *"Ability to take on the obligations of membership, including adherence to the aims of political, economic and monetary union"*. This criterion refers to the implementation of the Union's legislation, known as the *acquis communautaire*. Subsequent European

¹ See European Commission Enlargement report (2002)

Councils, in particular the Madrid European Council in 1995, have highlighted the importance, not only of incorporating the *acquis* into national legislation, but also of ensuring its effective application through appropriate administrative and judicial structures.

The economic criteria consist of two elements: the existence of a functioning market economy, and the capacity to withstand competitive pressure and market forces within the Union. These two elements are assessed through a number of sub-criteria which have been defined in Agenda 2000. The existence of a functioning market economy requires that prices, as well as trade, are liberalised and that an enforceable legal system, including property rights, is in place. Macroeconomic stability and consensus about economic policy enhance the performance of a market economy. A well-developed financial sector and the absence of any significant barriers to market entry and exit improve the efficiency of the economy. The capacity to withstand competitive pressure and market forces within the Union requires the existence of a market economy and a stable macroeconomic framework. It also requires a sufficient amount of human and physical capital, including infrastructure. It depends on the extent to which government policy and legislation influence competitiveness, on the degree of trade integration a country achieves with the Union and on the proportion of small firms.

3. Changes in the Economy:

3.1 Balance of Payments:

We must consider the trade between European countries and the ones of the rest of the world and OECD. Trade balance is important to understanding several variables of an economy, especially the conditions of the domestic market and income of the nations.

Foreign trade is an important channel through which embodied technological knowledge is transferred between “catching-up” countries and their technologically more advanced foreign partners. Through imports of technologically intensive products the “catching-up” countries can raise the quality of their products / services as well as the efficiency in which they are being produced. On the exports side, new technology is being absorbed through a learning-by-exporting process whereby quality, procedures and other kinds and specifications required for access to global market are being provided directly by foreign customers and competitors. But there are other means through which technological knowledge can flow across national boundaries. An obvious alternative is *foreign direct investment* (FDI). Although the entry of foreign affiliates increases the competition for local producers, the production and/or research activities undertaken by multinational affiliates can confer “spillover” benefits to the local economy. Knowledge may flow from the affiliate to local producers through formal and informal contacts, or trained affiliate personnel switching jobs to the local economy. Trade also gives the firms

3.2 Labor Markets and Pension system:

The European Union always puts pressure on governments to increase flexibility on labor markets in order to make firms more competitive and increase employment. Given the magnitude of income and wage differentials and the strong degree of integration involved by the accession, there are mounting concerns among the present EU members that Eastern Enlargement may have a number of undesirable effects on labor markets and income distribution. In particular, a deterioration of living standards of the unskilled workers,

associated with job displacement and wage losses triggered by the inflow of low-cost labor and the de-localization of plants from the West to the East is feared. The European commission estimates also suggest that since the 2004 enlargement, about 1.8 per cent of the population of the New member States has moved to the EU-15 countries, raising the host country population by 0.4 percent. Of this, approximately 75 per cent can be attributed to the enlargement process itself, while the remaining 25 per cent of the population shifts are likely to have occurred even in the absence of enlargement.

Both product and labor market policies and regulations impact the mobility, and are thus the key levers to effect a change. Having a skilled labor force is in turn essential to effective adoption and adaptation of technologies, whereas R&D enhances technology transfer by helping firms to learn about technological advances.

Pension system:

Almost all nations who belong in the European Union face the problem of deciding when to allow workers to reach retirement. This is due to the fact that many workers are facing an increase in age, while there are not as many younger workers who are ready for employment. In this case the many people who are seeking retirement often have to delay this moment due to the government which is continuously increasing the age and the years of work necessary in order to retire. Ageing is a serious problem in European nations because not many couples are having children anymore, due to the difficulty of finding a stable employment. With people living longer and the working-age population shrinking, the adequacy of pensions cannot be guaranteed as the required increase in expenditure would be unsustainable, unless both women and men also stay longer in employment and save more for their retirement. Therefore the pension reform is considered crucial by the European Union executives for the fact that an imbalanced pension reform which allows workers to retire too early can lead to serious imbalances to the country's public finances, which can easily lead to break the 3% limit of deficit to GDP. Even for governments itself it's a compromise they make with the European Union for spending cuts in order to use the structural funds for investments that create

employment. The pension system is one of the easiest ways to cut government spending and be able to recover several billion Euro's. Every nation, both the new members and the older ones are expected increase the retirement age from time to time.

3.3. Privatization and Liberalization:

An important reform that the new members are asked to undertake is to eliminate state-owned firms and liberalizing the market to competition.

This allows the government to reduce its debt or to increase investment expenditures with the money obtained from selling state-owned firms. This is also a way to reduce political presence in these field, which has often led to scandals which still occur today even in developed countries. It has become apparent in the context of the current economic and financial crisis that some State-owned enterprises are loss-making and/or have accumulated significant amounts of debt, which makes their economic viability uncertain. In order to address the problems that State owned Enterprises encounter, several Member States are taking measures in the form of financing (e.g. capital injections, writing off of debts), restructuring and/or privatization of State Owned Firms, which may potentially involve state aid. A measure constituting state aid shall not be implemented before it has been approved by the Commission. The compatibility of state aid measures needs to be assessed on the basis of the Treaty on the Functioning of the European Union. EU state aid rules must be complied with when carrying out financing, restructuring and/or privatization of State Owned Enterprises, and to provide clarifications on the way the Commission applies the main state aid principles.

Together with privatization, there must also be liberalization in the market economy in as many sectors as possible. If the state sells its firms to private ownership and doesn't liberalize the markets to further competition, it will only lead to an increase in prices.

3.4. Structural Funds:

Structural funds are provided to European Nations who are considered to be behind compared to the average in terms of GDP per capita. Usually they are provided to regions in which the GDP per capita is under 75% of the average of the European Union. EU's regional policy for the period 2007–2013 has 3 main objectives:

- **Convergence:** aimed at reducing income differences across regions;
- **Regional competitiveness and employment:** aimed at strengthening the competitiveness and attractiveness of the regions, as well as regional employment;
- **Territorial cooperation:** aimed at reinforcing cooperation at cross border, transnational level. In this case the funds are used in order to reduce the income gap between regions, in order for them all to have the same GDP per capita.

As we mentioned previously the funds are not simply used to put into the economy hoping to reach the same GDP levels of other countries in that way, but in order to sustain profitable investments in sectors in which there is high demand for labor and productiveness, together with structural reforms in other sectors that can boost long-term efficiency. The meaning of this is that a country must be able to benefit this investment for a long period of time, and also to create long-term employment. Further in the report, we will explain in detail the function of the

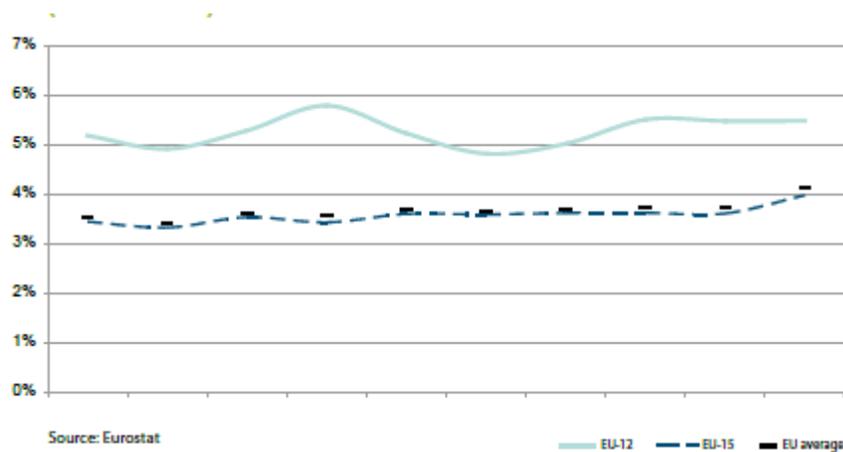
funds, with a practical example for how they are currently being used and the results obtained in Poland.

3.5. Investments and Europe 2020 Growth Strategy:

Major projects are generally large-scale infrastructure projects in transport, environment and other sectors such as culture, education, energy or ICT. They also concern big productive investments and research & development projects.

One of the key objectives of the EU during the last decade has been to encourage increasing levels of investment, in order to provide a stimulus to the EU's competitiveness. The Lisbon strategy set the EU an objective of devoting 3 % of its gross domestic product (GDP) to R & D activities by 2010. The target was not reached — and subsequently the 3 % target was maintained, forming one of five key targets within the Europe 2020 strategy adopted in 2010.

As we can see in the graph, the levels of investment have been higher in the new member states rather than in the older ones (EU 15). This is due to the fact that the nations that have recently entered the Union are attempting to converge with the old member states are undertaking more investments in order to boost productivity and reach similar levels to GDP per capita of the EU 15 members. This is mostly due to the structural funds that the European Union provides these new member states in order to reach these objectives. The most common investments are used for creating new forms of transport, such as railways, motorways, airports and ports for marine traffic. Other funds can be used to finance education, which of course many consider to be the engine of the society, and the main system to invest in.



Public investment as % of GDP

Then we have research and development, which the European Union expects each country to invest 3% of GDP to, since it's considered a crucial aspect of the economy. One of the main reasons that the new member states are at higher levels of public expenditure compared to older states is that, first they're in a transition economy; therefore they need to accelerate their investments in order to reach the same level of GDP per capita as the older members. Another aspect is the European fiscal stability pact, therefore, the debt-GDP ratio which can't be above the threshold of 60% and the Deficit GDP which can't pass the level of 3%. Many countries in Europe are already above these two limits in both fields, therefore they need to adopt a contractionary monetary policy, by decreasing government spending and increasing taxation. Instead many of these transition economies which have recently joined the European Union have a lower general debt ratio, and have a higher amount of funds which can be used for investments, so they have the possibility to benefit from this and increase public expenditure.

3.5.1. Europe 2020:

Understanding which reforms are being undertaken and the effectiveness and expected results. All members of the European Union are participating in the Europe 2020 growth plan.

The main objectives these countries are asked to undertake is to:

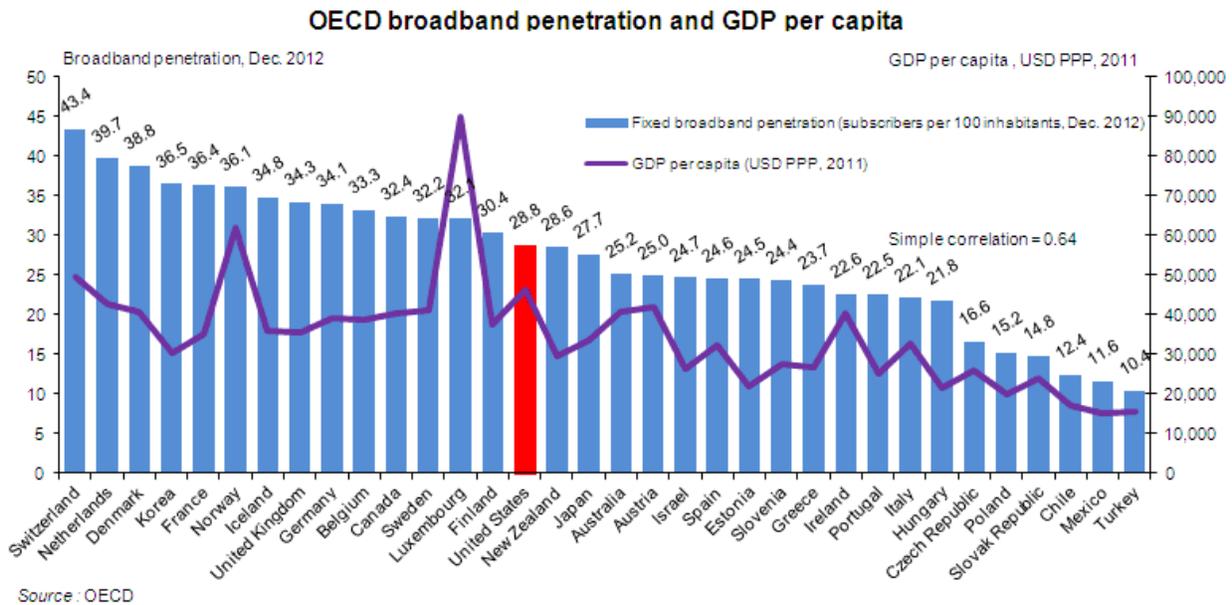
- increase the labor participation rate to at least 75% of the entire population
- Invest 3% of the European GDP in Research and development
- The share of early school leavers should be under 10%
- At least 40% of 30-34 years old should have completed a tertiary education
- Reducing the number of people at risk of poverty or exclusion by 20 million in the EU

These are the main goals for all European countries stated in the Europe 2020 growth plan. Europe 2020 is the European Union's ten-year growth and jobs strategy that was launched in 2010. It is about more than just overcoming the crisis from which our economies are now gradually recovering. It is also about addressing the shortcomings of our growth model and creating the conditions for a smart, sustainable and inclusive growth.

Other targets have been set for the EU to achieve by the end of 2020. These cover employment; research and development; climate/energy; education; social inclusion and poverty reduction. Each EU country has adopted its own national targets in each of these areas, and EU leaders have agreed a number of concrete actions at EU and national levels. They have also identified the most important areas of action which they believe can be new engines to boost growth and jobs.

4. Convergence Process in Poland:

Poland has done remarkably well economically since the collapse of the Soviet Union in 1989, and the beginning of its current democracy. It also performed relatively well after the 2008 financial crisis and was the only economy in the European Union to avoid recession in 2009.

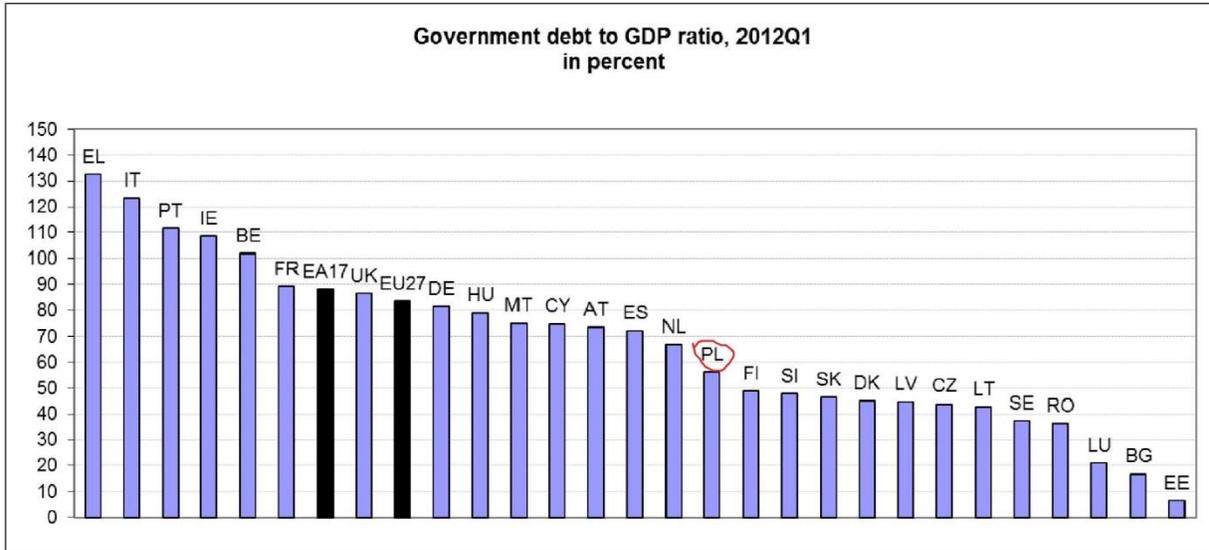


Thanks to the many reforms Poland has undertaken, Poland’s economic performance has been impressive since the beginning of the 2000s, allowing it to catch up steadily with the EU15 in GDP-per-capita terms. Even if in 2012 and 2013 the economy faced a slowdown in growth, with the average income still well below the European average, important challenges remain ahead.

Boosting job prospects is critical, because employment rates are low and because the country is facing strong demographic shrinkage and persistent emigration risks. Stimulating the business environment and strengthening market competition and liberalization are keys to maintaining a high level of competitiveness and raising medium-term economic prospects. Structural reforms in these areas are priorities for further convergence, developing knowledge-based capital and becoming a more innovation-based economy. It is important to note that EU accession strengthened Poland's credibility as a country conducting a reliable macroeconomic policy mix. This is reflected in a stable sovereign debt rating over the years. Membership in the EU confirmed Poland's position as a safe destination for foreign capital, where the investor is protected by European law.

4.1. Fiscal policy

The Polish fiscal policy has been very contracted in the past years due to the Maastricht treaty and European fiscal stability pact each nation is obliged to respect. With a 3.9% deficit of GDP ratio between 2010 and 2012, the general government deficit increased in 2013 to an estimated 4.8% of GDP, against the planned 3.5% in the April 2013 convergence program and the 3% limit stated in the European stability pact. In 2013, despite freezes on public wages and personal income tax thresholds, the excess was due mostly from tax receipts, which were lower than predictions due to the sharp economic slowdown and higher social expenditure. In terms of general government debt, which according to Maastricht can't exceed 60% of GDP, Poland has been able to remain under this limit, with its 53% of Debt to GDP.



Source: Eurostat

Poland has automatic stabilizer's at 50 and 55% to avoid to break the 60% limit imposed by the EU. To avoid additional tightening of around 1.2 percentage points of GDP in 2013, the government suspended the 50% debt threshold.

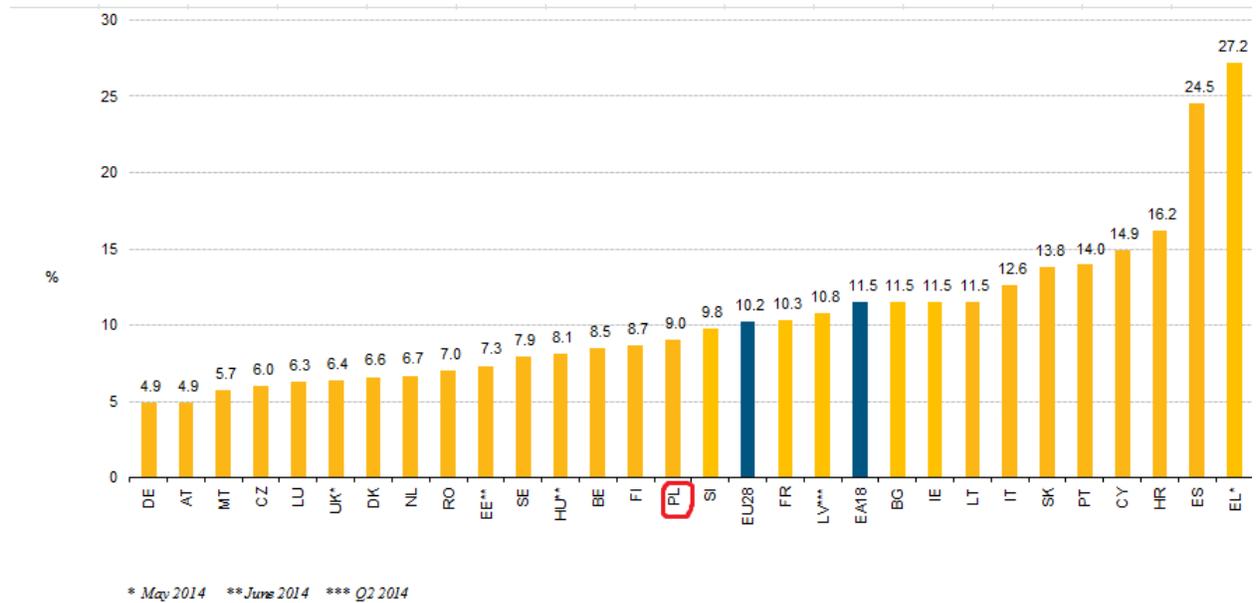
In the years prior to the global crisis, the Polish economy, unlike those in countries on the periphery of the euro area and the Baltic States did not accumulate any significant imbalances. Since Poland's EU accession, the volatility of both inflation and the output gap has been the lowest among both New Member States and OECD members. At the same time, the average current account deficit has been one of the lowest among New Member States and substantially lower than in the euro area's periphery countries, Greece, Portugal, and Spain. Also of note, the current account deficit has been relatively stable and, to a large extent, covered by net Foreign Direct Investment and capital transfers from the EU.

4.2. Employment, Migration and Pension system:

Employment remains one of Poland's major structural weaknesses, impeding firms' competitiveness and the nation's potential output. The total employment rate, at 59.7% in 2012, is one of the lowest among OECD countries, resulting from both low labor-force participation and high unemployment. Boosting employment prospects is also critical, because the country will be facing strong demographic shrinkage, given its low fertility rates and fast population ageing. Therefore structural reforms and investments seeking employment are crucial in order to allow Poland to increase its participation rate and decrease unemployment. Unfortunately almost all nations belonging to the European Union are facing these problems in increasing unemployment rate. The hourly labor cost in Poland is much lower compared to other European nations, this is a positive factor, even if the risk is that it can be too low.

In Poland the hourly cost of labor is about eight Euro's per hour, against a European average of 23, and the Euro Area-average of 28. This is mostly due to the currency effect, that Poland is not in the Euro-zone and therefore the cost of living is lower than other countries. This is why Poland attracts many Foreign Direct Investments (FDI), that many firms coming from abroad decide to open plants and industry in Poland thanks to the lower costs compared to the country of origin. To contribute to the low cost of labor is also the income tax rate. In Poland it is very favorable for hiring, since it is only at 32% of income, while the average of the Euro area is at 44% in 2013. Together with this even the corporate tax rate is very low in Poland, amounting to 19% of Net income, against the 25% average in the Euro Area. The European Union always suggests its member states to decrease these rates because if their level is too high, it make it more difficult for firms to make investments and increase employment. This is also an incentive for foreign firms to invest in Poland, since it gives firms higher possibility to create profits

Unemployment rate European Union 2014



Source: Eurostat

Despite this, the employment rate remains low due to the low level of expenditure for research and development, and the small enterprises which still have low level of investments. This is also due to the European Fiscal stability Pact is very rigid and doesn't allow countries to reach deficit levels above 3% of GDP and overall debt higher than 60% of overall GDP. But the unemployment rate in Poland is still under the average of the European Union. With its 9% unemployment rate against a 10% of the EU 28 countries Poland has been performing well and together with this, its overall debt over GDP ratio which is below 60% of total GDP, while the European average is about 90%. Thanks to the structural and cohesion funds Poland is able to devote a significant amount of GDP with investments which seek employment, even if in many sectors, Poland must devote more effort in order to improve the level of employment, which we will analyze in further detail throughout this report.

Pensions:

In 2013 Poland approved its new pension reform in which the retirement age was set for 67, for both men and women. Of course there is a transition period for both of them. For women it is of 30 years, since they were working only until 60, while for men the transition period is of only 7 years since they were already working until they were 65.

As we have previously mentioned these reforms are undertaken in order to make the pension system sustainable, since the expenditure increases continuously due to population ageing and increase expected life expectancy.

Thanks also to this reform the long term sustainability challenge for Poland is expected to be decreasing between 2010 and 2060. This is an outstanding target for Poland due to the fact that the only nations in Europe which are expected to obtain these results are Estonia, Denmark, Italy and Poland as we have mentioned. This rate is expected to decrease by 2% with respect of GDP against an European average of 1.4% of GDP.

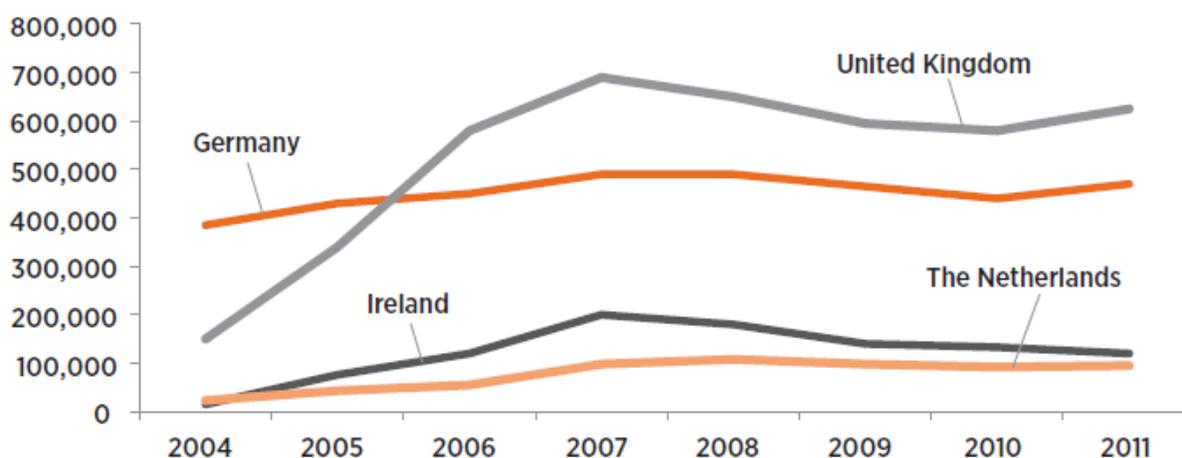
But pension entitlement rules are only one side of the challenge. The other side is very much about age management in workplaces and labour markets as obstacles can be found in age adverse aspects of work organisation, promotion, remuneration, access to training, and hiring and firing practices. Moreover, barriers to longer working lives tend to be different for women and men. Therefore governments need to work with the social partners to obtain the necessary changes, including in collective agreements.

Migration:

Certainly, the EU enlargement has led to increased migration from EU8 (New member states, NMS) countries to EU15 countries. However, initially, the EU enlargement did not enable Polish and EU8 citizens to work in every EU member state. The free movement of people between the EU15 and NMS, was suspended for up to seven years. However the number of nationals

from the EU8 countries residing in the EU15 countries grew from 900,000 in 2004 to 2.4 million in 2010², due to the fact that apart from Germany, the majority of the EU15 members removed the restrictions almost immediately.

Migration from Poland to Germany, Ireland, the Netherlands, and the UK, 2004–11



Source: Central Statistical Office, Poland.

Initially, most of the migrants were working in the UK and Ireland due to the restrictions implemented by most of the other EU15 countries, and due to the lower language barriers in the UK and Ireland. The restrictions resulted in a shift of migration flows from Germany, which was the main recipient country before 2004, to the UK and Ireland. As we can see in the graph above, even in Poland the trend of immigration has mostly been to move to either Germany or the United Kingdom, with the latter having a strong increase in immigration flows since entering the EU in 2004. However, the global financial and economic crisis hit the British and Irish labor markets especially hard, which resulted in a shift in migration flows to other EU member states, mainly former receiving countries. Of course many analysts predicted major emigration flows once these nations were permitted to enter the European Union in 2004. But

²Labour mobility within the EU - The impact of enlargement and the functioning of the transitional arrangements. Dawn Holland, Tatiana Fic, Ana Rincon-Aznar, Lucy Stokes (July 2011)

these predictions proved to be wrong due to the fact that first of all the majority of the EU8 member have been performing very positively and have been able to guarantee acceptable standards of living making it preferable for workers to stay in their home country rather than moving abroad. This trend has been even stronger after the 2008 financial crisis, with increasing unemployment and shrinkage of the economy in many states, which has made it even more discouraging to move in places such as the UK, Italy, France or Spain. Even in this situation many people, especially young students, have decided to undertake experience abroad temporarily, in order to improve its skills, or simply to undertake an international experience, and then returning back to his its country. The European Union devotes many funds in this field, especially with the Erasmus program which allows university students to study a year or a semester in a foreign university. This allows European citizen's to integrate with one another and experience new places, at very low prices due to the funds devoted from the European Union, which have devoted EUR 3.1 billion in the period between 2007and 2013. In the academic year 2010/2011, Poland sent almost 15000 students to study abroad according to the European commission³. The only countries who send more students abroad are Spain, France, Denmark and Italy. This is an extraordinary result which tells us how well Poland has been able to integrate in the European Union.

5. Structural Funds, Investments and Europe 2020 in Poland:

Poland is one of the new members who mostly benefitted from the European Funds due also to the size of the country. In the years 2007-13, the Ministry of Regional Development (MRD) estimates that Poland has received about EUR 67 billion⁴ within the framework of cohesion policy, the large scale of inflows contributed to the country's development, investment intensification, and the building of human capital. This effect comports with the aim of the

³ http://ec.europa.eu/education/library/statistics/ay-10-11/report_en.pdf

⁴ Poland National Development Strategy 2007-2015. Ministry of Regional Development (2006)

National Strategic Reference Framework defining funds utilization so as to create “the conditions for the growth of competitiveness of knowledge based economy and entrepreneurship which are to assure an increase in the employment and the level of social, economic and territorial cohesion. The modernization process is very long, and Poland already has a long term development strategy, which outlook is up to 2030, while its medium term strategy concentrates on the years 2014-2020.

So far the main accomplishments of the structural funds in Poland according to the ministry of Regional development have been:

- Construction and modernization of over 2 000 km of express roads and motorways;
- The length of railway tracks built/modernized in the years 2004-2013 amounted to approximately 2 300 km;
- Over 2 000 urban transport vehicles will be purchased and approximately 300 modernized under the agreements on urban transport;
- Support provided to over 28 000 enterprises;
- Almost 1200 results of Research and Development projects will be implemented;
- Almost 36 000 km of sewage network and 12 000 km of water supply network were built and modernised;
- Support provided to 5 000 kindergartens, pre-school complexes and centres;
- 55% of all schools in Poland were equipped with computer rooms, with almost 250 000 work stations.

In order to increase innovation in the country, Poland is actively deploying numerous financial instruments, upgrading its research infrastructure, and building strategic international partnerships. With over €10 billion in EU structural funds with the purpose for improving innovation outcomes, the Polish government is developing new strategies to help ensure the overall efficacy of new and ongoing initiatives in the sphere of innovation.

5.1. Transport Infrastructure:

Poland's transport infrastructure is one of the weaker elements of the Polish economy. It does not match the entrepreneurship of the Poles, nor the intensity of production and exchange or the mobility of residents. The current problems include: a high degree of wear of several infrastructural elements, uneven regional distribution, inadequate availability of the network, lack of network adjusted to the high speed traffic, poor connections between the built-up areas, insufficient infrastructure elements and poor systems integrating different types of networks. Major road infrastructure projects have advanced, but railway investment projects are still largely delayed. The most important goal for Poland to reach in 2020 is to increase the external and internal (interregional and local) territorial accessibility. Measures should, therefore, be taken aimed at eliminating peripherality, both of the country and of its regions. The second leading objective fostering improvement of territorial accessibility is to create a coherent transport system, making it possible to transport goods and people efficiently, using different means of transport, and taking into account the ecological characteristics of rail and inland transport. The model of funding can be by increasing the revenues from the use of transport infrastructure, involving extra-budgetary funds or cutting spending from other sectors in order to favor these investments which are crucial both for the Polish citizens and for foreigners travelling to Poland for vacation or work.

5.2. Telecommunications:

Despite recent efforts, Poland still lags considerably behind other Member States when it comes to seizing the growth potential of information and communication technologies (ICT). Fixed broadband coverage is the lowest in the EU, both at national and for rural areas. This is due both to the large size of the country, and for the low population density in which the inhabitants are very spread out throughout the country and makes it very expensive to connect everyone to broadband infrastructure. It is therefore necessary first of all to give regular access to the internet to the whole population, before thinking about moving to a ultra-high speed connection which is a longer term project. In fact in Poland the objective is to ensure everyone a broadband internet access in the period 2012-2016, while in the period 2016-2020 speed and high-speed Internet technology development (next generation network).⁵

It is also important to invest in digital television and radio, which has already been done in the majority of European States. In fact Poland expects by 2016 to complete the process of digitalization of Television and radio from the analogue one.

The situation is especially difficult in poorly urbanized areas, where costs of network construction are higher and give a lower rate of return, which makes them less profitable for private investors, therefore the use of public funds is essential. Despite the upward trend in broadband penetration, this increase is insufficient and Poland is still at a distant place among the EU Member States.

Providing users with Web content and services is not, and never will be, the exclusive domain of the state, but it is the state that is responsible for creating the appropriate environment (mostly

⁵ Poland National Development strategy 2020. Ministry of Regional development (2012)

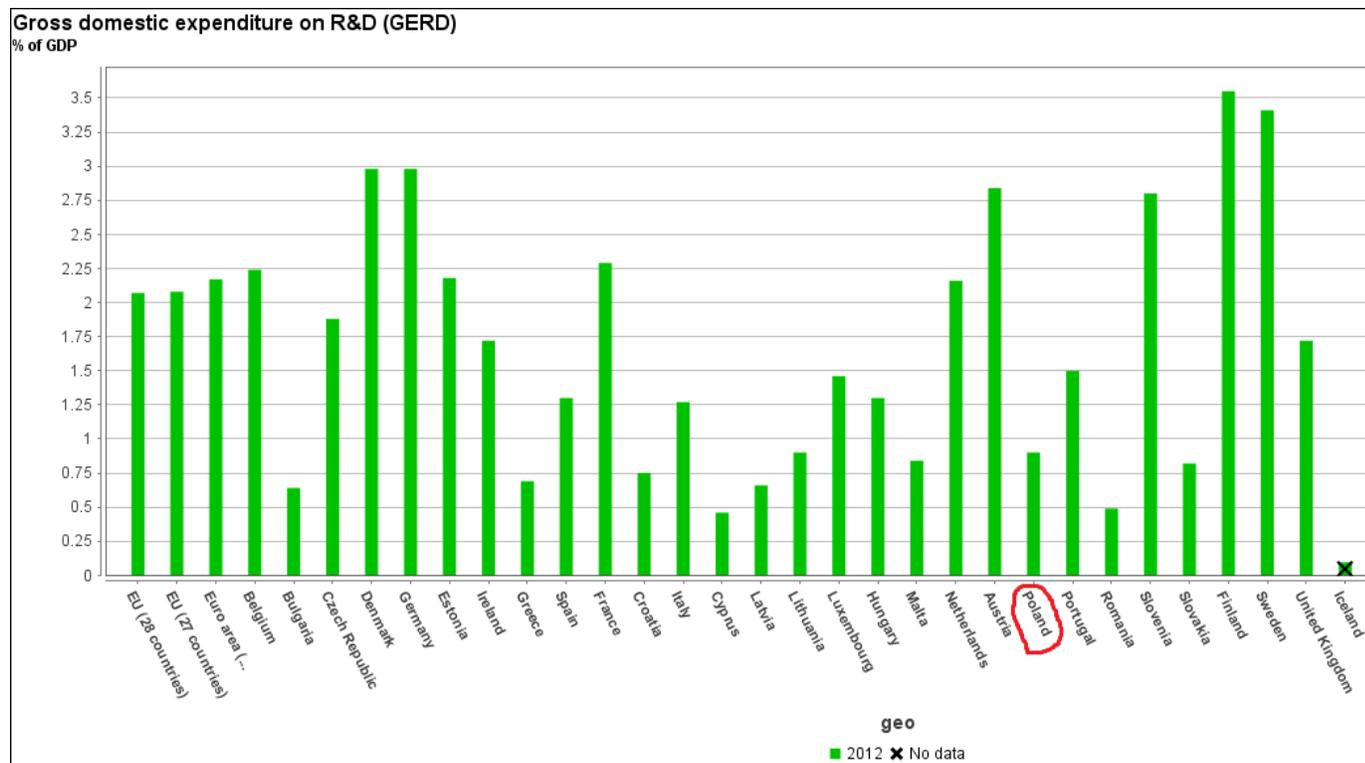
legal) to build a legal offer on the Internet for personal, businesses and offices of various levels. In order to build digital Poland it is important not only to stimulate the supply side - that is, to increase the number of high quality services, but also the demand side - that is, to build awareness of these services and to promote their use. The progressive digitization will be accompanied by promotion of online services, especially among those over 50 years old and among rural population, as it is in these groups that the percentage of Internet users is significantly lower than in developed EU countries.

Therefore it is essential for Poland to catch-up in this sector, due to the demand of the market, for how important digital technology is for today's population in 2014, both for domestic use, but especially for work, and the necessity to be connected at all times. Poland has a very detailed strategy, and if it is able to proceed as planned, by 2020 the country can be almost at the same levels as the rest of Europe.

5.3. R&D business sector:

The R&D sector is one of the main weaknesses of the Polish economy, and its one of the areas in which the government is putting the most effort in order to reach the same levels as the European Union's average. In 2012 the Polish expenditure towards R&D was only 0.9% of GDP. This level is very low considering that the average European expenditure for R&D amounts to approximately 2% of GDP according to Eurostat. Poland has set an ambitious national R&D intensity target of 1.7% by 2020⁶. Poland's R&D intensity experienced an average annual growth of +1.6% between 2000 and 2011. The average annual increase required to hit the 2020 target is considerably higher at +8.7%.

⁶ National Reform Programme Poland. European commission (2014)



Source: Eurostat

The main weakness remains underinvestment by the private sector. Every effort must be made to improve the efficiency of public spending and leverage it to increase private sector expenditures on R&D, which in Poland are around 40 percent of total R&D compared to 60 percent in most OECD countries. Business R&D expenditure accounts for only 0.2% of GDP. Low R&D spending is coupled with weak research and innovation activity by companies and an insufficiently innovation-friendly business environment. Tax incentives for encouraging R&D are ineffective in promoting internal R&D by the private sector and are used only by big companies. Therefore Poland must improve the innovation capacity of its firms and encourage both further private investments together with public ones. Out of the EUR 67 billion of structural funds allocated to Poland over the 2007-2013 programming period, around EUR 15 billion (22.8% of the total) are destined to finance R&D, ICT, business environment and Small Medium Enterprises.

Poland is close to the EU average in terms of access to finance. With the economic crisis spreading in Europe, a decline in the demand for and the number of loans made to SMEs has followed. However, the latest ECB lending survey shows that in 2011 the willingness of banks to provide loans improved in Poland in contrast to the majority of the other Member States.

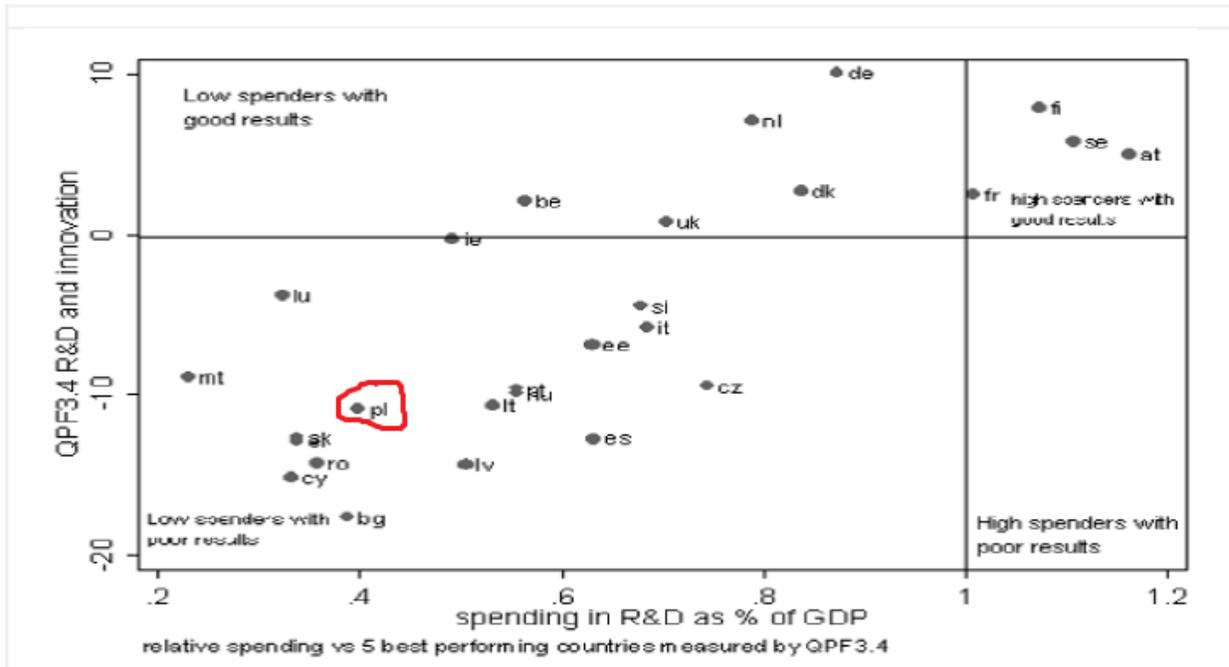
The challenges involved in increasing the quality and effectiveness of the Polish research and innovation system have been addressed by major reforms launched in recent years. The primary task of the Polish government will be to create an environment that stimulates cooperation between universities, businesses and financial institutions. It is therefore important to disseminate the information about the opportunities for R&D funding and on the possibilities of cooperation with specialized entities or academic institutions conducting such activities to entrepreneurs. Government's key partners in this regard will be business associations and business organizations. The scientific community will be encouraged and mobilized, at the same time, to respond to the needs of research for the industry.

In the period between now and 2020, profound reforms of the system of promotion of innovation and R&D will take place:

- The links between local, regional and national scientific institutions will be developed and strengthened, as well as their participation in European and global networks.
- The government will invest in order to promote development of products and services in areas where Poland may become a leader on the European and on a global scale, namely in industries with high potential demand. Poland is also addressing the issue of research fragmentation with initiatives to encourage specialization outlined in the National Research Programme adopted in August 2011. It identifies seven strategic research and development areas: energy, medicine and pharmaceuticals, IT and advanced technologies, environment and agriculture, socio-economic development, and security and defense.

- Create conditions to enable local authorities to take on a leadership role in integrating local academic, scientific and economic circles, as well as to coordinate the activities of entities operating in regional systems supporting innovation.
- Increase of technology transfer centers, technology incubators, science and technology parks, and of centers of advanced technology.
- Improvement of entities supporting the maximum use of creative business potential, such as training and research centers, financial institutions and consultancy in innovation and intellectual property, as well as local and regional development agencies and other support organizations.
- Cooperation between market participants and creation of clusters will be promoted. The increase of cooperation between businesses will allow especially the Small Medium Enterprises to create solutions and use technologies unavailable for them as for single units.

Effectively operating clusters increase competition and contribute to connecting businesses and research institutions and to combining their resources, thus bringing knowledge faster into the market. Clusters also have the mean to attract industrious and talented individuals, attract investors, support further research, strengthen the industrial base, and can lead to the development of specific products and services. Businesses operating within clusters can gain greater capacity to seek potential opportunities for foreign expansion, through establishing cooperative relations on a superregional and transnational level.

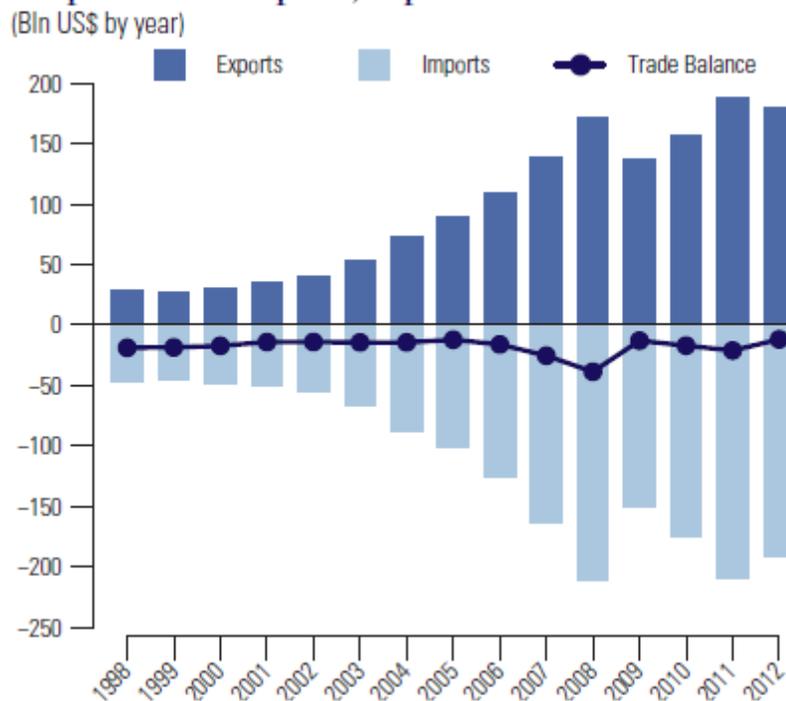


Source: DG Economic and Financial Affairs, European Economy, European Papers 382, April 2009

Development of innovation requires an adequate infrastructure basis. To build such basis is a task for the next decade. Both national resources, as well as resources from EU funds should be involved. The existing technical infrastructure for the development of innovation shall be built and strengthened, especially in regions endowed with sufficient potential in this scope. Particular attention will be paid to ensuring an easy and affordable access to broadband, which is especially important for the development of knowledge-based entrepreneurship.

The sales of goods and services with added value, created by intellectual property, keeps growing constantly. In modern economies, creative industries will soon have the same significance as traditional industries. Particular attention should be paid to the development of cities, which are the natural environment for the creative industries. Cities need to become attractive places to live in and to invest in, they should be an inspiring space, and should ensure that cultural heritage is maintained and cultural potential is developed; they should also be open to new cultural phenomena. This is the only way cities can attract and retain active and creative individuals.

5.4 Trade and FDI in Poland:

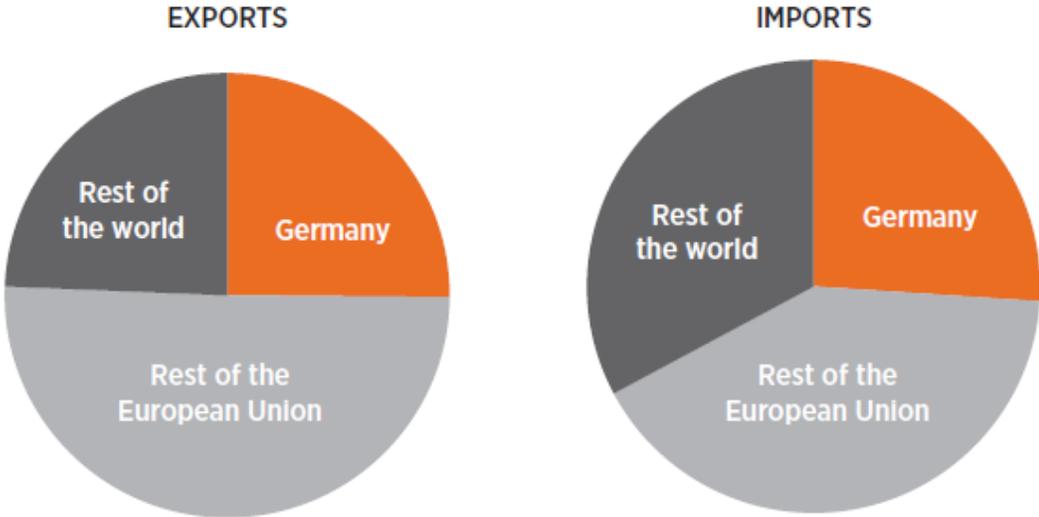


Source: UN Comtrade Poland

In 2012 the Polish trade balance was almost equal to zero. According to Eurostat exports amounted to approximately 178 billion while imports amounted to 176 billion. With destination of its exporting products is in the European Union with 77% of total exports. The second largest importer comes from the Russian Federation with a 10% of total imports. This is due to the fuels and carbon which mostly come from that area. Instead from the exporting point of view, the Polish exports mostly come from sectors such as manufacturing, road vehicles and transport equipment. In this case Poland is able to benefit from the fact that labor is cheaper in Poland compared to other European nations, therefore many firms from abroad such as Italy, France, etc. decide to move certain equipment facilities abroad in order to save on labor costs

and increase the working hours. For example Fiat produces one of its most important models, the FIAT 500 in a Polish factory in Tychy which today is one of the most important Fiat factories worldwide. In this case the foreign direct investment is used both for saving on cost of labour, which is lower in Poland compared to other nations such as Italy. FDI is also used in order to facilitate the production and sales of goods in other countries. In this case, in Poland many FIAT cars are sold, therefore if part of the production takes place in Poland, the company incurs lower transport costs. Of course Foreign Direct Investment are always encouraged by governments. This is because if foreign firms invest in Poland, they can create more employment thanks to foreign capital, and this always benefits the economy. This is why it is crucial for Poland to keep the cost of labour low and encourage a friendly business environment, with an efficient labour market law and high profitability of investments and innovation.

EXPORTS AND IMPORTS IN 2012



Source: Eurostat.

In 2012, Poland's exports were composed of 37.8 percent machinery and transport equipment, 21.0 percent manufactured goods classified chiefly by material and 12.4 percent miscellaneous manufactured articles. In addition to Germany, other major destinations for exports included

the United Kingdom, Czech Republic and France. From 2010 to 2012, top exported commodities were parts and accessories of the motor vehicles of headings 87.01 to 87.05, motor cars and other motor vehicles principally designed for the transport and reception apparatus for television.

6. Poland and Europe 2020:

6.1. Energy objectives

Modernization, restructuring and extension of energy infrastructure is key for ensuring adequate conditions for the stable growth of Polish economy, while guaranteeing that the “20/20/20” targets in the field of energy and the environment established for the entire EU in the Europe 2020 strategy will be achieved in 2020. Poland decided that reduction of primary energy consumption will serve as an indicator and a means of achieving these triple targets. Such a reduction does not only directly contribute to reduce fuel emissions, but also, in economic growth conditions, leads to an increased energy efficiency. This effect will be additionally strengthened by a growing share of energy generated from renewable energy sources in the overall energy structure.

Thanks to renewables such as solar energy, wind and many others, a nation can lead to new employment opportunities thanks to the investments undertaken to build the given plants and even once they are built they seek employment since workers are necessary when producing energy. Poland currently has a percentage of greenhouse gas emissions which above the

European average, even if the goal of Poland is both to reduce gas emissions, and increase its share of renewable energy. Even this data tells us that in 2011 Poland was also behind in its share of renewable energy compared to the remaining members of the European Union.

6.2. Education:

Poland is one of the best performers in the European Union for the education objectives of avoiding early school leavers and ensure a significant amount of the population retain a tertiary education. Over 40% of the people between 30 and 34 years of age have completed a tertiary level education, therefore finished university. This is an excellent target for a nation such as Poland which was still under communism until 1990. The fact that this amount of the population has obtained a university degree means that it is easier to increase the productivity in the economy.

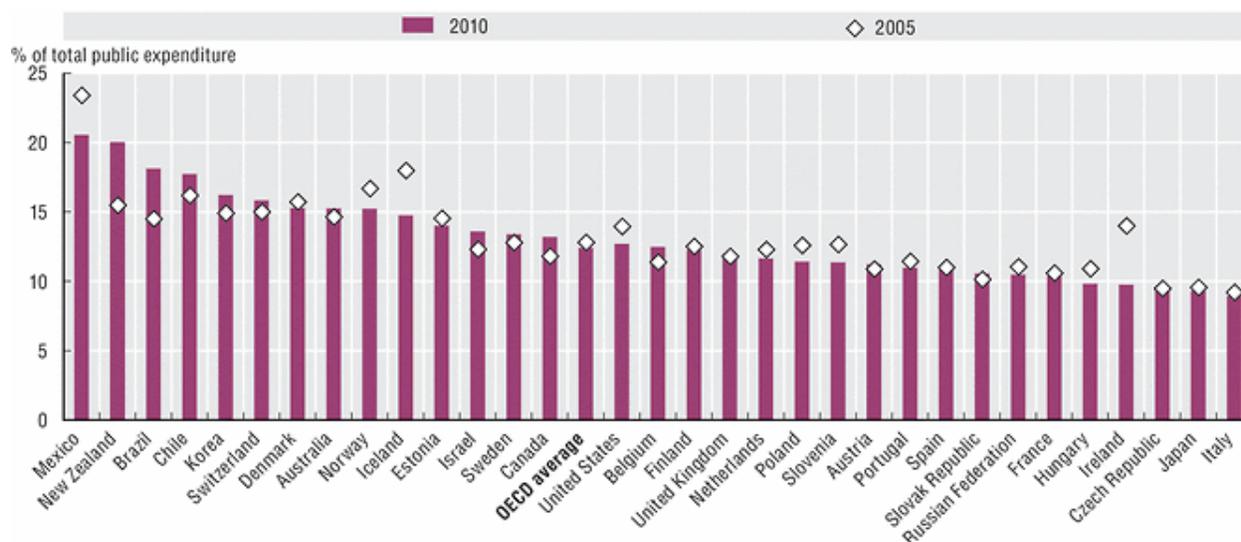
The other very positive result for Poland is that the percentage of early school leavers is only 5.3% against a 12% European average. It is rather impressive that developed nations such as Italy and Spain have a percentage of school dropouts which is over 15%, while in Poland it is only a third of their rate. This is due to the fact that the majority of the population in developing countries believe that with obtaining a higher level of education it is more likely to obtain a higher probability of having an employment or to have a higher wage than an individual with a lower level of education. In Poland the cooperation between schools, vocational education and training institutions, higher education institutions and external actors (industry, NGO's, professional organizations etc.) is traditionally quite limited.

Recently the government has made reforms in the education system in order to make students more competitive once finished with their education, including to the needs of the labor market, among others:

- Obliging universities to organize internships with a duration of three months or more during the degree program with a practical profile;
- Introduction of dual studies – on degree programs with practical profiles, with the possibility to introduce the dual education, which is alternating between didactic classes at the university and on-the-job training;
- A rule, pursuant to which more than half of the curriculum of a program with a practical profile will have to be implemented by way of workshops developing student’s practical skills, which should be conducted by persons with professional experience;
- An increase of the employer’s contribution to the preparation of curricula and to teaching courses;
- In 2012, 3,500 Polish primary schools (27% of all potential applicant schools) applied for inclusion in the “Digital School” piloting project. To support the process, the Ministry of National Education has invested heavily in the project and funds are earmarked for hardware, software, interactive boards and multimedia teaching aids. EU Structural Funds are also used in this case e.g. for equipping schools with computers and modern ICT equipment.

- Poland is implementing the "Distance Learning Project" (2009-14), whose beneficiaries are employees, teaching staff and educational institutions. Its aims are to promote, disseminate and implement a distance learning system in educational institutions, to provide high quality services in the distance education system through the development of standards for designing and conducting on-line courses, and to improve the competence of educational institutions staff in implementing and using distance learning solutions.

According to the OECD, in 2010, Poland spent USD 5, 737 a year on each pre-primary student, less than the OECD average of USD 6 762. Even in terms of expenditure with respect to GDP Poland falls below the OECD average with only 5.8% against 6.3%. However, since the introduction of compulsory school education for 5-year-olds, a continuous increase is expected in the proportion of total expenditure from public sources over the coming years due to the need of new employment of teachers and new school facilities. It is crucial for Poland to continue investing in Education, which is crucial both for increasing skills of Polish citizens and for creating employment. Several important reforms have been undertaken recently in order to improve the education system which allowed Poland to score above the OECD average of quality of education. In order to accelerate the economic convergence with the European Union, continuing to invest in education will surely make this easier.



Source: OECD

6.3. Counteracting poverty objective

Among EU-28 countries, Poland unfortunately belongs to the countries in which the poverty and social exclusion rate is very high. According to European Union and OECD Statistics on Income and Living Conditions, in 2012 the general at-risk-of-poverty or social exclusion rate amounted to 26.7%. The level of this rate for Poland has been constantly decreasing, but still remains higher than the EU average (24.8% in 2012). The problem of poverty is closely related to the situation on the labor market of which we have spoken about previously. The poverty or social exclusion rate is highest among the unemployed (in 2012: 58.7%). Thus, the key activities for counteracting poverty are those that increase chances for employment, by undertaking certain structural reforms that are also suggested by the European Union in order to increase the mobility of the labor market. At the same time, it is necessary to seek to combine actions taken to ensure stable employment for those who are able to work with actions aimed at social inclusion of persons at risk of poverty by providing access to high-quality services. In Poland, families with children, especially large families, as well as representatives of other social groups are also at risk of poverty. It is thus appropriate to take action to strengthen support for

families with dependent children, especially those in a relatively difficult financial situation, to continue support for families which find it difficult to fulfil their care and educational roles, as well as to take action to ensure housing for the poorest families.

These below are the main objectives for the Europe 2020 strategy that each nation should try to undertake, and we can also see where Poland stands with respect to all of these objectives.

As we have analyzed, Poland needs to significantly improve in terms of research and development, this figure is very important both in terms of growth and in terms of employment because it provides many opportunities especially for younger workers. As we see here Poland also needs to increase its employment rate by a significant amount in order to be in line with the Europe 2020 objectives.

Finally the education system seems to be performing very well with high level of individuals who have completed a tertiary education and a low dropout rate from school.

Europe 2020 Strategy Targets

Targets under the Europe 2020 Strategy	Poland
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75% of the population aged 20-64 should be employed	64.9%
3% of the EU's GDP should be invested in R&D	0.59%
The share of early school leavers should be under 10%	5.3%
At least 40% of 30-34 years old should have completed a tertiary education	32.8%

Source: European Commission 2010; World Bank staff estimates

7. EURO:

We must also consider the challenges ahead for Poland related to euro adoption. Since EU accession, Poland has participated in the Economic and Monetary Union (EMU) as a member state with derogation. Unlike Denmark or the United Kingdom, which negotiated opt-out arrangements before the adoption of the Maastricht Treaty in the early 1990s, Poland is obliged to adopt the euro at some point, after fulfilling the Maastricht convergence criteria. Therefore in the case of Poland, the question is thus not whether, but when, Poland should join the common currency area. Euro adoption involves giving up national monetary policy and irrevocably fixing the exchange rate of the domestic currency against the euro. Such changes need not be fundamental: some New Member States, Estonia and Latvia, for example, pegged

their currencies to the euro several years before their euro adoption, so their monetary policies were in fact shadowing that of the European Central Bank (ECB). In contrast, Poland's current monetary arrangement is based on independent monetary policy (within the inflation-targeting framework) and a floating exchange rate. This regime has generally served Poland well in terms of macroeconomic stability, both internal and external, so a proper timing of euro adoption by Poland needs careful analysis. The major challenge related to euro adoption results from the fact that Poland is a converging economy. As long as the zloty remains Poland's national currency, the price convergence and the trend real exchange rate appreciation resulting from the Balassa-Samuelson effect can occur, to a large extent, via nominal zloty appreciation. Once Poland joins the euro area, higher average inflation will become the only channel of price convergence. Since the nominal interest rate will be set by the ECB and not the National Bank Poland, higher inflation would translate into lower real interest rates relative to more advanced euro area economies. This would be precisely the opposite of what Poland needs: as a converging economy, it has a higher natural or equilibrium real interest rate than the euro area.

In Poland, the current supervisory arrangements have generally been quite successful at curbing excessive credit growth, but it is still uncertain how euro adoption will change this picture given that the future financial architecture of the euro area is still unknown. In turn the underdeveloped rental market raises the economy's susceptibility to real estate booms, and this risk should be addressed before Poland sheds its own currency.

7.1. Performance of remaining part of European Union:

Since the enlargement of 2004 many people have debated whether it was beneficial for the European member states to allow new members with such a low GDP per capita to enter the European Union.

As we mentioned previously, every year each country provides a given amount of money to a development fund which allows the regions with a low GDP per capita to use these funds. This in short means that the richer countries loan money to the poorer ones in order to give them the opportunity to reduce the income differential between these different nations.

Since the 2008 financial crisis the economic performance of the Euro- Area, which includes the majority of the old members has been very poor, with the GDP which has shrunken on average by 1.3% per year, while in the European Union the decline in GDP has only been on average 0.7% per year.

Therefore the new member states have been performing much better economically with respect to the older ones, therefore it is very difficult to say whether their entrance in the European Union has given the other members a negative impact.

With the data we have available, and a much more detailed analysis is needed, we can say that the poor performance in countries such as Italy, Spain or Greece is due mostly to internal problems or can be related to the Monetary Union fiscal Policy rather than the entrance of the new members, which seem to be an positive note in a very difficult economic crisis which is affecting Europe.

8. Conclusions:

At the end of this analysis we have seen how the last two European Union enlargements took place and what have been the results both for these New members and for the European Union itself, we can briefly sum up the main concepts and add some final considerations. We have seen how well a country like Poland has been performing since entering the European Union in 2004 and how much it has done before then in order to meet the requirements in order to join. Of course a lot still has to be done, not only by Poland who we analyzed here, but also the

remaining states which we haven't looked at, but are in a similar economic situation. Also the European Union still has many questions to answer in how it intends to continue supporting these new economies and if the older members are able to sustain certain investments since all of these nations have been heavily affected by the 2008 economic crisis.

Apart from this we can say that Poland is a model that should be followed by many countries due to the extraordinary results it has been able to obtain in the past years and what it expects to obtain in the next years, that is stated in its development strategy for 2020 and 2030. Poland still has many challenges ahead, such as improving its expenditure in Research and Development sector, especially by creating conditions to stimulate private investment. Poland must increase its participation rate, even if unemployment rate remains lower than the EU average, it is still necessary to create more employment. Then Poland must continue to invest in infrastructure, especially in the transport and communication sector, which still remains insufficient, even if the government expects to improve these in its development strategy. The question is whether Poland will be able to continue investing due to the very tight rules of the European fiscal policy in which a country is not allowed to have a budget deficit above a certain level. Apart from this, Poland has an education system which is considered to be one of the most efficient, in fact Poland already achieved the Europe 2020 goals in perusing students to not drop out of school and obtaining a tertiary level education. In all of these countries who have recently entered the European Union there has been a very high popularity among the inhabitants of these countries to enter the European Community and integrate themselves with the rest of the world. This participation hasn't taken place in modern economies such as Italy, France, Spain, in which many people don't feel involved in this process of integration countries and reject most of the European proposals of reform to try to make economies more competitive. Instead in all these new members, very important reforms have taken place, and been accepted by the people, even if some of them have been very tough to undertake. Such as pension system, labour market liberalization, and many spending cuts in sectors which by many are considered privileged and many fear to modify them. Therefore all the members of the European Union should reflect on which is the best solution in order to recover from the crisis. Unemployment rates have been increasing in the past five years, while GDP growth has

been negative. In many new member states this trend has been reversed, thanks to the fact that during the past decade these countries have been making important structural reforms, while the older members have been unable to adapt to change. Even if the European stability pact is very rigid Poland, and other new members have proved that it is still possible to grow, and it is very important for all countries to continue making reforms, and make their economy favorable for businesses to invest and create employment without deteriorating public finances.

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