

**IWONA PAWLAS**

University of Economics in Katowice, Poland

**COMPETITIVENESS OF THE POLISH ECONOMY AGAINST THE  
BACKGROUND OF OTHER EUROPEAN UNION MEMBER STATES.  
SELECTED ISSUES**

**Abstract:**

Poland joined the European Union in 2004. Accession to the EU resulted in considerable economic, social and political advantages. It also stimulated competitive development of the Polish economy. An attempt was made in the paper to determine Poland's competitive position against the background of other EU member economies. Competitiveness of Polish goods both on the world market and on Single European Market was studied. Investment attractiveness of Poland and the significance of the inflow of foreign capital for its development were analyzed. Low level of innovativeness was considered one of major barriers for achieving a higher level of competitiveness. The results of Author's own research were compared with the findings of World Economic Forum, Geneva and Institute for Management Development, Lausanne.

**Keywords:**

competitiveness, Poland, European Union

**JEL Classification:** F00, F15, F63

## Introduction

Competitiveness of a national economy reflects its position in the globalized world. Competitiveness is built not inherited. With international interactions becoming more and more intense each and every national economy should make every effort to achieve a higher level of competitiveness. Poland joined the European Union in 2004 as a member state with pretty low level of competitiveness. Accession to the EU resulted in considerable economic, social and political advantages. It also stimulated competitive development of the Polish economy. An attempt was made in the paper to determine Poland's competitive position against the background of other EU member states. Selected measures of competitiveness were used in order to analyze economic performance of the Polish economy at the time of financial crisis and global economic instability, competitiveness of Polish goods in the world market and in the EU market, and significance of foreign direct investment for the Polish economy. Additionally chosen elements of innovativeness of the Polish economy were studied. Methods of descriptive analysis and comparative analysis were used. Research was undertaken for the period 2007-2012.

## Competitiveness – theoretical aspects

Competitiveness is studied and analysed on both micro-, mezo- and macro- level. In microeconomics competitiveness is related to the ability of a company to produce profit, gain new market segments, enter new markets and develop constantly. The mezo level of competitiveness concentrates on industries. Macro level of competitiveness relates to country's (national economy's) competitiveness. In addition to that some authors suggest studying competitiveness on mega-level e.g. competitiveness of the European Union. The concept of international competitiveness of nations is rather young. What's more it is difficult to define competitiveness of a national economy. The following definitions of the category of competitiveness should be mentioned here:

- "Competitiveness is the ability to produce technological effectiveness in the world of constantly changing technologies" (Fagerberg 1988, p.370-371);
- "Competitiveness at the national level is productivity. The principal goal of a nation is to produce a high and rising standard of living for its citizens" (Porter 1990, p.76)
- Competitiveness is the ability to sustain, in a global economy, an acceptable growth in the real standard of living of the population with an acceptably fair distribution, while efficiently providing employment for substantially all who can and wish to work and doing so without reducing the growth potential in the standard of living of future generations (Hickman, 1992);
- Competitiveness is the degree to which a nation can, under free trade and fair market conditions, produce goods and services that meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the long term. Competitiveness in international trade is a measure of a country's advantage or disadvantage in selling its products in international markets (OECD, 2001);
- Competitiveness is the ability of a country to realize central economic policy goals, especially growth in income and employment, without running into difficulties with balance of payments (Bloch & Kanyon, 2001)

- “Competitiveness of nations is a field of economic theory which analyses the facts and policies that shape the ability of a nation to create and maintain an environment that sustains more value creation for its enterprises and more prosperity for its people” (Institute for Management Development, 2006, p.2);
- “Competitiveness is the set of institutions, policies and factors that determine the level of productivity of a country” (World Economic Forum, 2013, p.4);

The analysis of competitiveness includes both competitive position (static approach) and competitive advantage, competitive potential (dynamic approach). Balanced socio-economic growth compatible with constant evolution of the world economy system is a good proof of dynamic competitiveness of a national economy. What's more it should result in an appropriately directed evolution of comparative advantages of a country, as a final effect of national competitive advantage (Misala, 1994). When focusing on factors determining competitiveness both assets and processes should be taken into account. The list of assets important for competitive development embraces: natural resources, accumulated wealth, human resources, financial resources, as well as elements of international environment. Processes stimulating competitive development include: social economic system, economic policy, institutions and international environment. One should stress the importance of access to information, technology and financial resources, particularly in a globalised world. According to the US Council on Competitiveness, key drivers of competitiveness include: innovation and entrepreneurship, ability to manage risk and achieve resiliency, ability to use globalization, i.e. the interconnectivity of the global economy, securing energy and creating sustainability, and finally winning the skills race, i.e. establishing a competitive edge at the intersection of disciplines, which means creating technically skilled jobs that cannot be easily off-shored (Council on Competitiveness, 2014a; Council on Competitiveness, 2014b; Council on Competitiveness, 2014c; Council on Competitiveness, 2014d; Council on Competitiveness, 2014e). ATKearney's experts believe there is strong correlation between the improvement of economic, social, environmental situations, attracting foreign investment, rise in exports and increase in country's competitiveness (ATKearney, 2014). Measuring competitiveness is measuring “how nations and enterprises manage the totality of their competencies to achieve increased prosperity” (Adams, 2014). Most often competitiveness is treated as a relative category which means it is necessary to compare country's competitiveness with the competitiveness of other national economies. Measuring competitiveness is quite complicated. A number of indices are used: real GDP growth rate, unemployment rate (or employment growth rate), inflation rate, trade balance. The above mentioned set of indices makes it possible to examine macroeconomic performance of a country, its macroeconomic policy and institutional effectiveness. GDP per capita as a synthetic measure of economic development is also worth adopting. One should also study the level of public sector deficit/surplus or/and accumulated debt in relation to GDP. Inflow of FDI can show investment attractiveness of national economy while outflow of capital in the form of direct investment may reflect its aggressiveness in the world economy. In addition to that Revealed Comparative Advantage (RCA) indicator can be applied in order to study foreign trade performance.

### **Poland and other EU economies at the time of global instability**

Real GDP growth for Poland and other EU economies for the period 2007-2012 was presented in table 1. Figure 1. shows real GDP growth for Poland and the average for

EU-27. Poland was the only economy which did not experience reduction in GDP in 2009 and one of twelve EU member economies which did not show decline in 2012.

Table 1. Real GDP growth in 27 EU economies from 2007 to 2012 (percentage change on previous year)

Country	2007	2008	2009	2010	2011	2012	2007-2012 Annual average
Austria	3.7	1.4	-3.8	1.8	2.8	0.9	1.13
Belgium	2.9	1.0	-2.8	2.3	1.8	-0.1	0.85
Bulgaria	6.4	6.2	-5.5	0.4	1.8	0.6	1.65
Cyprus	5.1	3.6	-1.9	1.3	0.4	-2.4	1.02
Czech Republic	5.7	3.1	-4.5	2.5	1.8	-1.0	1.27
Germany	3.3	1.1	-5.1	4.0	3.3	0.7	1.22
Denmark	1.6	-0.8	-5.7	1.4	1.1	-0.4	-0.47
Estonia	7.5	-4.2	-14.1	2.6	9.6	3.9	0.88
Greece	3.5	-0.2	-3.1	-4.9	-7.1	-7.0	-3.13
Spain	3.5	0.9	-3.8	-0.2	0.1	-1.6	-0.18
Finland	5.3	0.3	-8.5	3.4	2.8	-1.0	0.38
France	3.5	0.9	-3.8	-0.2	0.1	-1.6	0.40
Hungary	0.1	0.9	-6.8	1.1	1.6	-1.7	-0.80
Ireland	5.0	-2.2	-6.4	-1.1	2.2	0.2	-0.38
Italy	1.7	-1.2	-5.5	1.7	0.4	-2.4	-0.88
Lithuania	9.8	2.9	-14.8	1.6	6.0	3.7	1.53
Luxembourg	6.6	-0.7	-5.6	3.1	1.9	-0.2	0.85
Latvia	10.0	-2.8	-17.7	-1.3	5.3	5.2	-0.22
Malta	4.1	3.9	-2.8	4.1	1.6	0.6	1.92
Netherlands	3.9	1.8	-3.7	1.5	0.9	-1.2	0.53
<b>POLAND</b>	<b>6.8</b>	<b>5.1</b>	<b>1.6</b>	<b>3.9</b>	<b>4.5</b>	<b>2.0</b>	<b>3.98</b>
Portugal	2.4	0.0	-2.9	1.9	-1.3	-3.2	-0.52
Romania	6.3	7.3	-6.6	-1.1	2.3	0.6	1.47
Sweden	3.3	-0.6	-5.0	6.6	2.9	0.9	1.35
Slovenia	7.0	3.4	-7.9	1.3	0.7	-2.5	0.33
Slovakia	10.5	5.8	-4.9	4.4	3.0	1.8	3.43
United Kingdom	3.4	-0.8	-5.2	1.7	1.1	0.3	0.08
EU-27 average	3.2	0.4	-4.5	2.0	1.7	-0.4	0.40

Source: Compiled from EUROSTAT,

<http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tec00115>, viewed on April 10<sup>th</sup>, 2014.

Real GDP growth of Poland amounted to 6.8% in 2007 while the average for EU-27 was 3.2%. In 2008 there was a 5.1% growth in Polish GDP, while the average for EU-27 equalled 0.4% only. In 2009 Poland's economy rose by 1.6% and the average for EU-27 was minus 4.5%. For some EU economies the fall in GDP in 2009 was truly dramatic: Estonia – minus 14.1%, Lithuania – minus 14.8%, Latvia – minus 17.7%. In 2010-2011 real annual growth of the Polish economy amounted to 3.9% and 4.5% (again the pace of growth for Poland was higher than the average for EU-27, which was 2.0% and 1.7% respectively). The year 2012 must be seen as another crisis year for EU-27. There was a slight reduction in real GDP of the EU-27 observed (by 0.4%). Again some EU member economies were hit much more than others: the Greek economy experienced a 7% decline of GDP, the Italian economy shrank by 2.4%, the economy of Cyprus – by 2.4%, the Slovenian economy – by 2.5%, the Portuguese economy – by 3.2%. In Poland a 2% increase of GDP was noted in 2012. Thus, real annual average GDP growth for the period 2007-2012 was highest for Poland - 3.98%, with the EU-27 average was just 0.40%, and minimum observed for Greece equalled minus 3.13%.

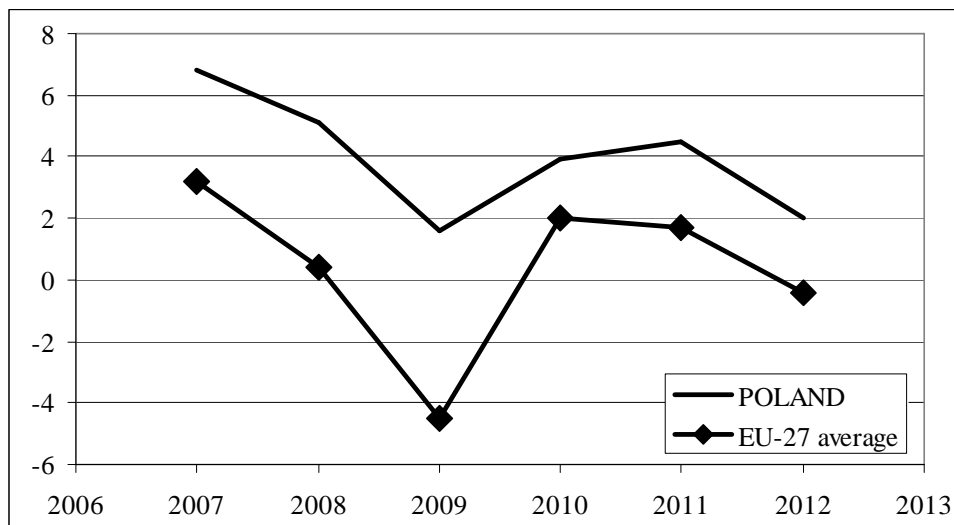


Figure 1. *Real GDP growth – Poland and EU-27 average (%)*

Source: Own elaboration based on EUROSTAT data.

Table 2. GDP per capita (PPS USD) in 27 EU economies from 2007 to 2012 (EU-27=100)

Country	2007	2008	2009	2010	2011	2012
Austria	124	125	126	127	129	130
Belgium	116	116	118	121	120	120
Bulgaria	40	44	44	44	47	47
Cyprus	94	100	100	97	94	92
Czech Republic	83	81	83	81	81	81
Germany	116	116	115	120	123	123
Denmark	123	125	124	128	126	126
Estonia	70	69	64	64	69	71
Greece	90	93	94	88	80	75
Spain	105	104	103	99	96	96
Finland	118	119	115	114	116	115
France	108	107	109	109	109	109
Hungary	62	64	65	66	67	67
Ireland	146	132	129	129	129	129
Italy	104	104	104	103	102	101
Lithuania	62	64	58	62	68	72
Luxembourg	275	264	253	263	266	263
Latvia	57	59	54	55	60	64
Malta	78	81	84	87	86	86
Netherlands	132	134	132	130	129	128
<b>POLAND</b>	<b>55</b>	<b>56</b>	<b>61</b>	<b>63</b>	<b>65</b>	<b>67</b>
Portugal	79	78	80	80	77	76
Romania	42	47	47	48	48	50
Sweden	125	124	120	124	125	126
Slovenia	89	91	86	84	84	84
Slovakia	68	73	73	74	75	76
United Kingdom	118	114	112	108	105	106

Source: Compiled from EUROSTAT,  
<http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tec00114>,  
 viewed on April 10<sup>th</sup>, 2014.

Disparities in level of economic development in the group of twenty seven EU Member States are quite considerable. Table 2. presents GDP per capita in EU economies according to purchasing power standard (PPS) from 2007 to 2012. Due to a

comparatively favourable position of the Polish economy at the time of global financial and economic instability, a continuous rise in Poland's GDP per capita and a relative improvement of Poland's position with respect to economic development against the background of other EU-27 member economies was observed. In 2007 GDP per capita (PPS) in Poland represented just 55% of EU-27 average. Poland took the 25<sup>th</sup> position, overtaking Bulgaria and Romania only. In 2012 GDP per capita (PPS) in Poland reached 67% of EU-27 average (Poland was classified on the 23<sup>rd</sup> position (together with Hungary)).

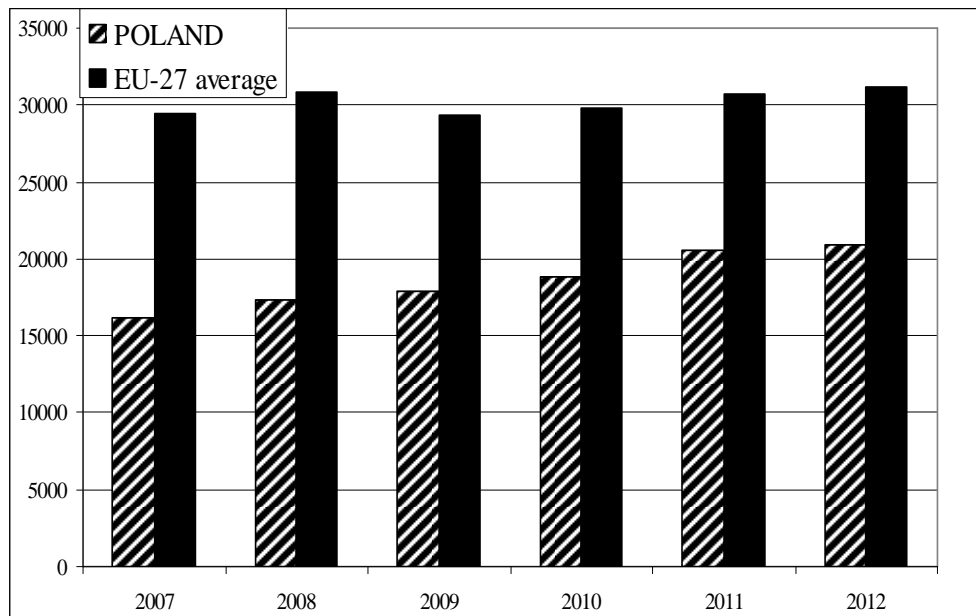


Figure 2. *GDP per capita (PPS USD) – Poland and EU-27 average*

Source: Own elaboration based on EUROSTAT data.

Another aspect of competitive development of a national economy is promoting employment and fighting unemployment. During the period of economic instability deterioration of labour market situation was observed in most EU-27 economies. Again some economies were doing much better than others. Average unemployment rate for EU-27 was a bit over 6% from 2007 to 2008, in 2009 it exceeded 8.8% and later it went on rising till 10.6% in 2012. The most dramatic situation was observed in Greece and Spain where unemployment rate reached 25% in 2012. Austria, Germany, the Netherlands and Luxembourg were in a privileged situation: they noted a 4-5% unemployment in 2012. Unemployment rate in Poland was a bit higher than the EU-27 average in 2007-2008 – it amounted to 9.6% in 2007 and 7.1% in 2008. Later an upward tendency of unemployment in Poland was observed, but unemployment rate in Poland was a bit lower than the average for EU-27 (8.2% in 2009, 9.6%-9.7% from 2010 to 2011 and 10.1% in 2012) (see table 3. and figure 3.)

Difficulties of public finance sector may be viewed as some sort of derivative of financial and economic crisis and instability in the majority of EU-27 member states. Table 4.

presents budget deficit/surplus as % GDP and public debt as % of GDP for twenty seven EU Member States from 2007 to 2012.

Table 3. Unemployment rate in 27 EU economies from 2007 to 2012

Country	2007	2008	2009	2010	2011	2012
Austria	4.4	3.8	4.8	4.4	4.2	4.3
Belgium	7.5	7.0	7.9	8.3	7.2	7.6
Bulgaria	6.9	5.6	6.8	10.2	11.2	12.3
Cyprus	3.9	3.6	5.3	6.5	7.8	11.9
Czech Republic	5.3	4.4	6.7	7.3	6.7	7.0
Germany	8.4	7.3	7.5	7.1	5.9	5.5
Denmark	3.8	3.3	6.0	7.4	7.6	7.5
Estonia	4.7	5.5	13.8	16.9	12.5	10.2
Greece	8.3	7.7	9.5	12.6	17.7	24.3
Spain	8.3	11.3	18.0	10.1	21.7	25.0
Finland	6.9	6.4	8.2	8.4	7.8	7.7
France	8.3	7.8	9.5	9.7	9.7	10.2
Hungary	7.4	7.8	10.0	11.2	10.9	10.9
Ireland	4.6	6.0	11.9	13.7	14.4	14.7
Italy	6.1	6.7	7.8	8.4	8.4	10.7
Lithuania	4.3	5.8	13.7	17.8	15.4	13.3
Luxembourg	4.7	4.9	5.4	4.5	4.8	5.1
Latvia	6.0	7.5	17.1	18.7	16.2	14.9
Malta	6.4	5.9	6.9	6.8	6.5	6.4
Netherlands	3.2	2.8	3.4	4.5	4.4	5.3
<b>POLAND</b>	<b>9.6</b>	<b>7.1</b>	<b>8.2</b>	<b>9.6</b>	<b>9.7</b>	<b>10.1</b>
Portugal	8.0	7.7	9.6	11.0	12.9	15.9
Romania	6.4	5.8	6.9	7.3	7.4	7.0
Sweden	6.1	6.2	8.3	8.4	7.5	8.0
Slovenia	4.8	4.4	5.9	7.3	8.2	8.9
Slovakia	11.1	9.5	12.0	14.4	13.5	14.0
United Kingdom	5.2	5.6	7.6	7.8	8.0	7.9
EU-27 average	6.3	6.2	8.8	9.6	9.9	10.6

Source: Compiled from Central Statistical Office, 2009, Poland in the European Union 2009, Warsaw; Central Statistical Office, 2010, Poland in the European Union 2010, Warsaw; and EUROSTAT, <http://epp.eurostat.ec.europa.eu/>, viewed on February 28th, 2014.

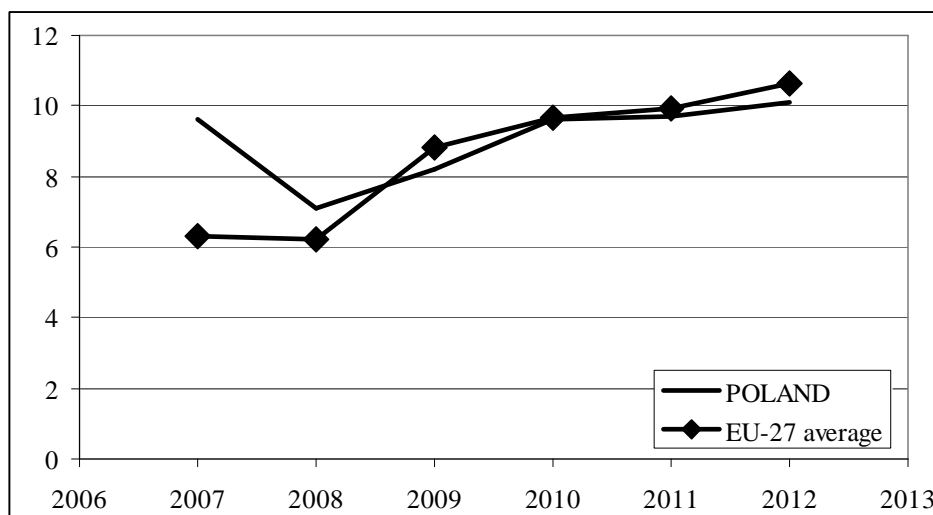


Figure 3. Unemployment rate – Poland and EU-27 average (%)

Source: Own elaboration based on EUROSTAT data and Central Statistical Office data.

In 2007 twelve Member States noted surplus, while in 2009 there was no such MS, and in 2012 Germany alone experienced surplus of its public finance sector. In 2007 only in Greece, Hungary and Portugal public sector deficit exceeded 3% GDP. In 2009 there were twenty two such MS and for some of them the scale of budget deficit was hard to believe (e.g. Greece – 15.6% GDP, Ireland – 13.9% GDP, UK and Spain – over 11% GDP). In 2010 the Irish public finance sector experienced unprecedented deficit of 30.8% GDP. In 2012 in case of sixteen MS budget deficit was over 3% GDP (in Greece and Spain it exceeded 10% GDP). Poland did meet Maastricht convergence criterion related to budget deficit just once in 2007 (deficit amounted to 1.9% GDP). In 2009-2012 budget deficit in Poland amounted to 7.4-7.9% GDP. In 2011 it was reduced to 5% GDP and in 2012 it amounted to 3.9% GDP. An upward tendency is observed with respect to public debt as % of Poland's GDP. It rose from 45% GDP in 2007 to 55.6% in 2012. During the same period of time the situation worsened in all EU MS. In 2012 the worst and most dangerous situation was observed in Greece (156.9% GDP), Italy (127% GDP), Portugal (123.6% GDP) and Ireland (117.6% GDP), while Estonia, Luxembourg and Bulgaria formed the leading trio (10.1% GDP, 20.8% GDP and 18.5% GDP respectively).

Table 4. Public finance sector deficit/surplus and public debt in 27 EU economies from 2007 to 2012 (% GDP)

Country	Public finance sector as % GDP (-) - deficit, (+) - surplus						Public debt as % GDP					
	2007	2008	2009	2010	2011	2012	2007	2008	2009	2010	2011	2012
Austria	-0.9	-0.9	-4.1	-4.5	-2.5	-2.5	60.2	63.8	69.2	72.0	72.5	73.4
Belgium	-0.1	-1.0	-5.6	-3.8	-3.7	-3.9	84.0	89.2	95.7	95.5	97.8	99.6
Bulgaria	1.2	1.7	-4.3	-3.1	-2.0	-0.8	17.2	13.7	14.6	16.2	16.3	18.5
Cyprus	3.5	0.9	-6.1	-5.3	-6.3	-6.3	58.8	48.9	58.5	61.3	71.1	85.8
Czech Republic	-0.1	-2.2	-5.8	-4.8	-3.3	-4.4	27.9	28.7	34.2	37.8	40.8	45.8
Germany	0.2	-0.1	-3.1	-4.1	-0.8	0.2	65.2	66.8	74.5	82.4	80.4	81.9
Denmark	4.8	3.2	-2.7	-2.5	-1.8	-4.0	27.1	33.4	40.7	42.7	46.4	45.8
Estonia	2.4	-2.9	-2.0	0.2	1.2	-0.3	3.7	4.5	7.2	6.7	6.2	10.1
Greece	-6.5	-9.8	-15.6	-10.7	-9.5	-10.0	107.4	112.9	129.7	148.3	170.3	156.9
Spain	1.9	-4.5	-11.2	-9.7	-9.4	-10.6	36.3	40.2	53.9	61.5	69.3	84.2
Finland	5.3	4.4	-2.5	-2.5	-0.8	-1.9	35.2	33.9	43.5	48.6	49.0	53.0
France	-2.7	-3.3	-7.5	-7.1	-5.3	-4.8	64.2	68.2	79.2	82.4	85.8	90.2
Hungary	-5.1	-3.7	-4.6	-4.3	4.3	-1.9	67.0	73.0	79.8	81.8	81.4	79.2
Ireland	0.1	-7.4	-13.9	-30.8	-13.4	-7.6	25.1	44.5	64.8	92.1	106.4	117.6
Italy	-1.6	-2.7	-5.5	-4.5	-3.8	-3.0	103.3	106.1	116.4	119.6	120.8	127.0
Lithuania	-1.0	-3.3	-9.4	-7.2	-5.5	-3.2	16.8	15.5	29.3	37.9	38.5	40.7
Luxembourg	3.7	3.2	-0.8	-0.9	-0.2	-0.8	6.7	14.4	15.3	19.2	18.3	20.8
Latvia	-0.4	-4.2	-9.8	-8.1	-3.6	-1.2	9.0	19.8	36.9	44.4	41.9	40.7
Malta	-2.3	-4.6	-3.7	-3.6	-2.5	-3.3	60.7	60.9	66.4	67.4	70.3	72.1
Netherlands	0.2	0.5	-5.6	-5.1	-4.5	-4.1	45.3	58.5	60.8	63.1	65.5	71.2
<b>POLAND</b>	<b>-1.9</b>	<b>-3.7</b>	<b>-7.4</b>	<b>-7.9</b>	<b>-5.0</b>	<b>-3.9</b>	<b>45.0</b>	<b>47.1</b>	<b>50.9</b>	<b>54.8</b>	<b>55.2</b>	<b>55.6</b>
Portugal	-3.1	-3.6	-10.2	-9.8	-4.4	-6.4	68.4	71.7	83.7	94.0	108.3	123.6
Romania	-2.9	-5.7	-9.0	-6.8	-5.6	-2.9	12.8	13.4	23.6	30.5	34.7	37.8
Sweden	3.6	2.2	-0.7	0.3	0.2	-0.5	40.2	38.8	42.6	39.4	38.4	38.2
Slovenia	0.0	-1.9	-6.2	-5.9	-6.4	-4.0	23.1	22.0	35.0	38.6	46.9	54.1
Slovakia	-1.8	-2.1	-8.0	-7.7	-5.1	-4.3	29.6	27.9	35.6	41.0	43.3	52.1
United Kingdom	-2.8	-5.1	-11.5	-10.2	-7.8	-6.3	44.2	52.7	67.8	79.4	85.5	90.0

Source: Compiled from Central Statistical Office, 2009, Poland in the European Union 2009, Warsaw; Central Statistical Office, 2010, Poland in the European Union 2010, Warsaw; and EUROSTAT, <http://epp.eurostat.ec.europa.eu/>, viewed on February 28th, 2014.



### Competitiveness of Polish goods

Having in mind that the ability to sell products in the world market proves competitiveness of a national economy, the engagement of the Polish economy in international trade was analysed. Tables 5-7 present the development of Poland's foreign trade from 2007 to 2012. As it stems from the data Poland's foreign trade was influenced by global instability. In 2007 Poland's exports amounted to USD138.8 billion. A year later there was a significant increase of exports up to USD171.9 billion, but in 2009 huge reduction was observed: the value of Poland's exports dropped to USD136.6 billion. Later Poland's exports showed an upward tendency up to the year 2011 when it reached USD190.2 billion. Unfortunately in 2012 slight reduction of Poland's exports was noted to USD184.7 billion. Similar changes were observed on the imports side. In 2007 Poland imported goods worth USD164.2 billion. Next year the value of Poland's imports amounted to USD210.5 billion. In 2009 Poland's imports dropped below USD150.0 billion. Its value was highest in 2011 (USD212.3 billion) and in 2012 it was close to USD200.0 billion. A significant trade deficit in Poland's trade with the world was observed in each and every year. The biggest trade deficit of as much as USD38.6 billion was noted in 2008. It seems worth mentioning that in 2012 trade deficit was reduced to USD13.8 billion.

The European Union is the number one trade partner for Poland in both exports and imports. In 2007 Poland's exports to the EU amounted to USD109.4 billion. In 2008 it almost reached USD134 billion. As a result of financial crisis in 2009 reduction in Poland's exports to the EU was observed; Poland exported goods worth USD108.8 to Single European Market. Later an upward tendency was noted and in 2011 Poland's exports to the EU amounted to USD148.5 billion. In 2012 slight reduction in Polish exports to the EU was observed (USD140.4 billion). Poland's imports from the EU amounted to USD 105 billion in 2007. It was highest in 2008 when it reached USD130. billion. In 2012 Poland imported goods worth USD114 billion from other EU countries. It's really important that in the analysed period of time Poland did experience surplus in its trade with the EU. The value of trade surplus increased from USD4.1 billion in 2007 to USD26.4 billion in 2012.

Indices of exports and imports for Poland and the world are shown in table 6. Exports dynamics for Poland is usually higher the exports dynamics for the world (years 2010 and 2012 are the only exceptions here), e.g. in 2008 world exports increased by 4% while the Polish exports rose by 7%; in 2009 world exports shrank by 14% while Poland's exports decreased by 8%. A similar tendency can be observed on the imports side. In 2007 world imports rose by 5% and the Polish imports noted a 15% rise; in 2008 world imports increased by 2% and the Polish imports rose by 7%. In 2009 imports indices for Poland and the world were the same – minus 14%. Imports dynamics for Poland was lower than for the world in 2010 and 2012 only.

Table 5. Poland's foreign trade from 2007 to 2012 (USD million)

	2007	2008	2009	2010	2011	2012	2007	2008	2009	2010	2011	2012
	With the World						With the European Union					
Exports	138785	171860	136641	159758	190247	184661	109367	133858	108765	126742	148515	140405
Imports	164172	210478	149570	178063	212331	198463	105226	130507	92463	106127	126875	114048
Balance	-25387	-38618	-12929	-18305	-22084	-13802	+4141	+3351	+16302	+20615	+21640	+26357

Source: Central Statistical Office, 2012, Yearbook of Foreign Trade Statistics of Poland 2012, Warsaw; Central Statistical Office, 2013, Yearbook of Foreign Trade Statistics of Poland 2013, Warsaw.

Table 6. Indices of exports and imports (constant prices, previous year=100)

	2007	2008	2009	2010	2011	2012
	Exports					
World	107.0	104.0	86.0	117.0	108.0	100.0
Poland	109.0	107.0	92.0	113.0	108.0	97.1
	Imports					
World	105.0	102.0	86.0	118.0	104.0	100.0
Poland	115.0	109.0	86.0	114.0	106.0	93.5

Source: Compiled from World Trade Organization, 2011, International Trade Statistics 2011, [http://www.wto.org/english/res\\_e/statis\\_e/its2011\\_e/its2011\\_e.pdf](http://www.wto.org/english/res_e/statis_e/its2011_e/its2011_e.pdf) , viewed 12th September 2013 and World Trade Organization, 2013, International Trade Statistics 2013, [http://www.wto.org/english/res\\_e/statis\\_e/its2013\\_e/its2013\\_e.pdf](http://www.wto.org/english/res_e/statis_e/its2013_e/its2013_e.pdf), viewed 12th September 2013.

Poland's shares in world's merchandise exports and imports were presented in table 7. Poland is not an important player on the global scale. Poland's exports represented 1.00-1.09% of world's trade. Poland's share in world's imports ranged from 1.07 to 1.26.

Table 7. Poland's share in world's merchandise trade from 2007 to 2012 (%)

	2007	2008	2009	2010	2011	2012
Exports	1.00	1.06	1.09	1.02	1.02	1.00
Imports	1.16	1.26	1.17	1.13	1.13	1.07

Source: Compiled from World Trade Organization, 2011, International Trade Statistics 2011, [http://www.wto.org/english/res\\_e/statis\\_e/its2011\\_e/its2011\\_e.pdf](http://www.wto.org/english/res_e/statis_e/its2011_e/its2011_e.pdf) , viewed 12th September 2013 and World Trade Organization, 2013, International Trade Statistics 2013, [http://www.wto.org/english/res\\_e/statis\\_e/its2013\\_e/its2013\\_e.pdf](http://www.wto.org/english/res_e/statis_e/its2013_e/its2013_e.pdf), viewed 12th September 2013.

Composition of Poland's exports to the world and imports from the world by sections according to SITC nomenclature was presented in table 8. Three SITC sections were prevailing on the exports side, namely: section 6 – Manufactured goods classified chiefly by material, section 7 – Machinery and transport equipment and section 8 – Miscellaneous manufactured articles. The above mentioned three sections represented about 77% of Poland's exports to the world in 2007 and over 71% in 2012. Machinery and transport equipment alone stood for 41% of Poland's exports in 2007 and more than 37% in 2012. It's worth mentioning that the share of section 5 – Chemicals and related products rose from 7.3% in 2007 to 9.1% in 2012. A similar tendency was noted for section 0 – Food and live animals. Its share in Poland's total exports increased from 8.4% in 2007 to 10.5% in 2012. On the imports side sections: 7 – Machinery and transport equipment, 6 – Manufactured goods classified chiefly by material and 5 – Chemicals and related products were crucial. They accounted for 70% of Poland's imports in 2007 and 63% in 2012. In case of section 3 – Mineral fuels, lubricants and related materials a rising importance was observed; its share in Poland's imports rose from 9.9% in 2007 to 13.2% in 2012. Section 8 – Miscellaneous manufactured articles accounted for 9-10% of Poland's imports in the analysed period of time.

Table 8. Composition of Poland's exports to the world and imports from the world by sections according to SITC nomenclature (%)

SITC Section	2007	2008	2009	2010	2011	2012	2007	2008	2009	2010	2011	2012
	Exports						Imports					
0	8.4	8.5	9.6	9.2	9.3	10.5	5.3	5.7	6.9	6.5	6.5	7.0
1	0.8	0.9	1.4	1.3	1.2	1.3	0.6	0.5	0.6	0.6	0.6	0.6
2	2.3	2.2	1.9	2.3	2.4	2.4	3.0	3.1	2.7	3.1	3.5	3.5
3	3.8	4.2	3.1	4.1	4.8	4.9	9.9	11.2	9.4	10.7	12.6	13.2
4	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.4	0.4
5	7.3	7.9	7.8	8.6	8.9	9.1	13.0	13.0	14.0	14.3	14.1	13.9
6	23.2	21.8	19.5	20.3	21.3	21.1	21.2	18.7	17.4	17.8	18.2	17.3
7	40.9	41.4	43.2	41.1	38.9	37.4	35.6	35.5	35.6	34.3	31.8	32.1
8	13.0	12.8	13.2	12.8	12.8	12.7	8.6	9.1	10.7	10.3	9.8	9.1
9	0.1	0.1	0.1	0.1	0.2	0.4	2.5	2.8	2.4	2.1	2.5	2.9

0 – Food and live animals, 1 – Beverages and tobacco, 2 – Crude materials, inedible, except fuels, 3 – Mineral fuels, lubricants and related materials, 4 – Animal and vegetable oils, fats and waxes, 5 – Chemicals and related products, 6 – Manufactured goods classified chiefly by material, 7 – Machinery and transport equipment, 8 – Miscellaneous manufactured articles, 9 – Commodities and transactions not classified elsewhere in the SITC

Source: Own calculations based on data from: Central Statistical Office, 2008, Yearbook of Foreign Trade Statistics of Poland 2008, Warsaw; Central Statistical Office, 2009, Yearbook of Foreign Trade Statistics of Poland 2009, Warsaw; Central Statistical Office, 2010, Yearbook of Foreign Trade Statistics of Poland 2010, Warsaw; Central Statistical Office, 2011, Yearbook of Foreign Trade Statistics of Poland 2011, Warsaw; Central Statistical Office, 2012, Yearbook of Foreign Trade Statistics of Poland 2012, Warsaw; Central Statistical Office, 2013, Yearbook of Foreign Trade Statistics of Poland 2013, Warsaw.

Table 9. shows commodity pattern of Poland's trade with the EU by sections according to SITC nomenclature. Sections 6 – Manufactured goods classified chiefly by material, 7 – Machinery and transport equipment, 8 – Miscellaneous manufactured articles were dominant on the exports side, while sections 6 - Manufactured goods classified chiefly by material, 7 – Machinery and transport equipment and 5 – Chemicals and related products were prevailing on the imports side, with section 7 being the leader in Poland's exports to the EU and imports from the EU. The share of machinery and transport equipment in Poland's exports to the EU was over 40% in 2007 and some 38% in 2012; in imports it accounted for 37% in 2007 and almost 34% in 2012. Rising importance of sections 0 – Food and live animals and 5 – Chemicals and related products in Poland's exports to the EU must be underlined. Section 0 became more and more important also in Poland's imports from the EU.

Table 9. Composition of Poland's exports to the EU and imports from the EU by sections according to SITC nomenclature (%)

SITC Section	2007	2008	2009	2010	2011	2012	2007	2008	2009	2010	2011	2012
	Exports						Imports					
0	8.65	8.92	9.69	9.16	9.19	10.45	5.53	6.45	7.82	7.49	7.66	8.39
1	0.78	0.91	1.49	1.40	1.37	1.51	0.58	0.59	0.62	0.65	0.61	0.66
2	2.60	2.44	2.00	2.47	2.46	2.41	2.24	2.35	2.51	2.62	2.82	3.01
3	4.29	4.60	3.28	4.48	5.26	5.37	4.13	4.56	3.83	3.45	3.88	3.09
4	0.24	0.23	0.22	0.22	0.21	0.24	0.33	0.44	0.42	0.42	0.55	0.57
5	6.33	6.99	6.72	7.62	8.27	8.37	16.66	17.23	18.93	19.54	19.17	19.15
6	22.83	21.60	19.01	20.23	21.70	21.80	25.54	23.46	22.44	23.58	23.60	23.18
7	40.73	40.73	43.71	40.87	37.76	35.82	37.44	37.17	34.97	34.17	33.79	33.63
8	13.51	13.54	13.87	13.51	13.58	13.49	7.21	7.39	8.00	7.69	7.28	7.45
9	0.03	0.03	0.02	0.06	0.19	0.54	0.33	0.37	0.46	0.39	0.63	0.85

Source: Own calculations based on data from: Central Statistical Office, 2008, Yearbook of Foreign Trade Statistics of Poland 2008, Warsaw; Central Statistical Office, 2009, Yearbook of Foreign Trade Statistics of Poland 2009, Warsaw; Central Statistical Office, 2010, Yearbook of Foreign Trade Statistics of Poland 2010, Warsaw; Central Statistical Office, 2011, Yearbook of Foreign Trade Statistics of Poland 2011,

Warsaw; Central Statistical Office, 2012, Yearbook of Foreign Trade Statistics of Poland 2012, Warsaw; Central Statistical Office, 2013, Yearbook of Foreign Trade Statistics of Poland 2013, Warsaw.

Table 10. Poland: Revealed comparative advantage (RCA) in trade with the world and with the EU

SITC Section	2007	2008	2009	2010	2011	2012	2007	2008	2009	2010	2011	2012
	With the World						With the European Union					
0	1.58	1.49	1.39	1.42	1.43	1.50	1.56	1.38	1.24	1.22	1.20	1.25
1	1.33	1.80	2.33	2.17	2.00	2.17	1.34	1.54	2.40	2.15	2.25	2.29
2	0.77	0.71	0.70	0.74	0.69	0.69	1.16	1.04	0.80	0.94	0.87	0.80
3	0.38	0.38	0.33	0.38	0.38	0.37	1.04	1.01	0.86	1.30	1.36	1.74
4	0.67	0.50	0.67	0.67	0.50	0.50	0.73	0.52	0.52	0.52	0.38	0.42
5	0.56	0.61	0.56	0.60	0.63	0.65	0.38	0.41	0.35	0.39	0.43	0.44
6	1.09	1.17	1.12	1.14	1.17	1.22	0.89	0.92	0.85	0.86	0.92	0.94
7	1.15	1.17	1.21	1.20	1.22	1.17	1.09	1.10	1.25	1.20	1.12	1.07
8	1.51	1.41	1.23	1.24	1.31	1.40	1.87	1.83	1.73	1.76	1.87	1.81
9	0.04	0.04	0.04	0.05	0.08	0.14	0.09	0.08	0.04	0.15	0.30	0.64

Source: Own calculations based on data from: Central Statistical Office, 2008, Yearbook of Foreign Trade Statistics of Poland 2008, Warsaw; Central Statistical Office, 2009, Yearbook of Foreign Trade Statistics of Poland 2009, Warsaw; Central Statistical Office, 2010, Yearbook of Foreign Trade Statistics of Poland 2010, Warsaw; Central Statistical Office, 2011, Yearbook of Foreign Trade Statistics of Poland 2011, Warsaw; Central Statistical Office, 2012, Yearbook of Foreign Trade Statistics of Poland 2012, Warsaw; Central Statistical Office, 2013, Yearbook of Foreign Trade Statistics of Poland 2013, Warsaw.

In order to determine areas of comparative advantage in Poland's trade with the world and with the EU, B.Balassa's index of revealed comparative advantage (RCA) was adopted. The results of author's own calculations were presented in table 10. Poland gained revealed comparative advantage in its trade with the world with respect to sections: 0 – Food and live animals, 1 – Beverages and tobacco, 6 – Manufactured goods classified chiefly by material 7 – Machinery and transport equipment and 8 – Miscellaneous manufactured articles. In case of trade with the European Union revealed comparative advantage for Poland was also noted in sections: 0, 1, 7 and 8 in the analysed period of time i.e. from 2007 to 2012. Additionally revealed comparative advantage was observed in section 2 from 2007 to 2008 and in section 3 – from 2007 to 2012 but the year 2009.

### Poland and Foreign Direct Investment

International transfer of capital in the form of foreign direct investment is considered an important element of international economic relations in contemporary world economy. Investment attractiveness can be defined as an ability to convince investors to choose the country/region as a destination for their investment. A high level of real investment attractiveness of a country results in inward FDI. On the other hand, however, if you want to build sustainable competitiveness of a national economy you should promote not only its attractiveness for FDI but also aggressiveness in international markets which can be reflected in outward FDI.

The most important features of the Polish economy as FDI location include: favourable geographical location, big internal market of more than 38 million consumers, comparatively cheap labour, highly educated specialists. Table 11 presents inward FDI flows to Poland and the European Union from 2005 to 2012. From 2005 to 2007 average inward FDI flow to Poland amounted to USD17.8 billion. In 2007 it reached USD23.6

Despite a comparatively good performance of the Polish economy during the global crisis and instability 2008+ Poland experienced a decline in FDI inflow from 2008 to 2010 (Zimny 2012). Inward FDI flows were reduced to USD13-15 billion a year. In 2011 the situation got much better: FDI inflow amounted to USD18.9 billion. Unfortunately the data for the year 2012 were extremely and surprisingly bad: inward FDI flow to Poland amounted to USD3.6 billion only. Poland's share in world's FDI inflow was the highest in 2007 – 1.18%.

Table 11. Poland and the European Union as a location of FDI: inward FDI flows from 2005 to 2012

Economy	Inward FDI flow	2005-2007 (pre-crisis average)	2007	2008	2009	2010	2011	2012
	(USD billion)	17.8	23.6	14.9	12.9	13.9	18.9	3.6
POLAND	Share in world (%)	1.19	1.18	0.82	1.06	0.99	1.15	0.25
	(USD billion)	648.5	923.8	536.9	359.0	379.4	441.6	258.5
European Union	Share in world (%)	43.49	43.99	30.32	29.51	26.93	26.73	19.13

Source: UNCTAD, 2010, World Investment Report: Investing in a Low-Carbon Economy. Country Fact Sheet: Poland; UNCTAD, 2013, World Investment Report 2013: Global Value Chains: Investment and Trade for Development. Country Fact Sheet: Poland.

Table 12. Poland and the European Union as investors in the world market: outward FDI flows from 2005 to 2012

Economy	Outward FDI flow	2005-2007 (pre-crisis average)	2007	2008	2009	2010	2011	2012
	(USD billion)	5.91	5.40	4.41	4.70	7.23	7.21	-0.89
POLAND	Share in world (%)	0.38	0.24	0.22	0.41	0.48	0.43	n.a.
	(USD billion)	849.70	1287.30	915.80	381.90	497.80	536.50	323.1
European Union	Share in world (%)	55.37	56.77	45.64	33.22	33.07	31.97	23.23

Source: UNCTAD, 2010, World Investment Report: Investing in a Low-Carbon Economy. Country Fact Sheet: Poland; UNCTAD, 2013, World Investment Report 2013: Global Value Chains: Investment and Trade for Development. Country Fact Sheet: Poland.

The activity of Polish entities in international markets in the form of outward FDI is very limited. Outward FDI flows from Poland to the world from 2007 to 2012 were presented in table 12. The scale of outward FDI was just a small fraction of inward FDI (Zimny 2013). The years 2010-2011 were the best for outward FDI flows from Poland – over USD7.0 billion invested abroad per year. The share of Poland in world's FDI outflow was really low – less than 0.5%.

Table 13 presents inward FDI stock and outward FDI stock for the period 2005-2012 for Poland and the EU. In 2007 inward FDI stock in Poland amounted to USD178.4 billion. In 2012 it reached USD230.6 billion. Outward FDI stock equalled only USD21.3 billion in 2007. It reached USD57.5 billion in 2012.

Table 13. Poland and the European Union: inward and outward FDI stock from 2007 to 2012 (USD billion)

Economy	FDI Stock	2007	2008	2009	2010	2011	2012
POLAND	Inward	178.4	164.3	185.2	215.6	198.2	230.6
	Outward	21.3	24.1	29.3	44.4	49.7	57.5

European Union	Inward	7568.6	6670.0	7433.3	7447.2	7357.9	7805.3
	Outward	8913.1	8068.2	9111.0	9278.6	9245.5	9836.9

Source: UNCTAD, 2010, World Investment Report: Investing in a Low-Carbon Economy. Country Fact Sheet: Poland; UNCTAD, 2013, World Investment Report 2013: Global Value Chains: Investment and Trade for Development. Country Fact Sheet: Poland.

### Innovativeness of the Polish economy

Innovativeness is considered an important factor of pro-competitive development of a national economy not only by economists, but also by the EU officials. Therefore an attempt was made to analyze innovativeness of the Polish economy against the background of other EU-27 economies.

Table 14. Human capital as fundamentals for national economy's innovativeness in EU-27 countries

Country	Population with tertiary education *	Life-long education **	Education of young population ***	Country	Population with tertiary education *	Life-long education **	Education of young population ***
EU-27 average	34.6	8.9	79.5	Latvia	35.7	5.0	80.4
Austria	23.8	13.4	85.4	Malta	21.1	6.6	59.2
Belgium	42.6	7.1	81.6		41.1	16.7	78.2
Bulgaria	27.3	1.2	85.5	Germany	30.7	7.8	75.8
Cyprus	45.8	7.5	87.7	<b>POLAND</b>	<b>36.9</b>	<b>4.5</b>	<b>90.0</b>
Denmark	41.2	32.3	70.0	Portugal	26.1	11.0	64.4
Estonia	40.3	12.0	82.6	Czech Rep.	23.8	11.4	91.7
Finland	46.0	23.8	85.4	Romania	20.4	1.6	79.6
France	43.4	5.5	83.8	Slovakia	23.4	3.9	93.3
Greece	28.9	2.4	83.6	Slovenia	37.9	15.9	90.1
Spain	40.6	10.8	61.7	Sweden	47.5	25.0	88.7
Ireland	49.4	6.8	86.9	Hungary	28.1	2.7	83.3
Lithuania	45.4	5.9	86.9	United	45.8	15.8	80.1
Luxembourg	48.2	13.6	73.3	Italy	20.3	5.7	76.9

\* - % population aged 30-34 years, data for 2012

\*\* - number of people participating in courses as % population aged 25-64 years, data for 2011

\*\*\* - % people aged 20-24 years in upper secondary education, data for 2012

Source: Innovation Union Scoreboard 2013 European Commission, Brussels 2013 and [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php?title=File:Lifelong\\_learning,\\_2006\\_and\\_2011\\_%28%29\\_%28%25\\_of\\_the\\_population\\_aged\\_25\\_to\\_64\\_participating\\_in\\_education\\_and\\_training%29.png&filetimestamp=20121001105931](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php?title=File:Lifelong_learning,_2006_and_2011_%28%29_%28%25_of_the_population_aged_25_to_64_participating_in_education_and_training%29.png&filetimestamp=20121001105931)

Table 14. presents chosen indices connected with education. The European Union underlines the necessity to improve the quality and performance of education and training systems with focus on tertiary education and life-long learning. In 2012 the share of EU-27 population aged 30-34 with tertiary education amounted to 34.6%. The leading trio was formed by Ireland (49.4%), Luxembourg (48.2%) and Sweden (47.5%). In Poland university graduates constituted 37% of population aged 30-34. The worst situation was observed in Malta, Italy and Romania where only 20% of population aged 30-34 had university degree. Because of a really fast pace of changes knowledge becomes stale faster and faster. That's why it is truly important to promote life-long education. The average of life-long education for EU-27 reached 8.9% in 2011. Denmark, Sweden and Finland with 24-32% of population aged 25-64 participating in life-long education projects and programmes must be perceived as EU leaders. Unfortunately life-

long education is not Poland's strong point. Only 4.5% of population aged 25 years or more did participate in life-long education in Poland in 2011. The situation looked much better with respect to education of young population: 90% of Poles aged 20-24 were in upper-secondary educational institutions in 2012.

Innovation development requires expenditure on research and development (R&D). According to Lisbon Strategy, Renewed Lisbon Strategy and Strategy Europe 2020, the EU-27 should spend 3% GDP on R&D. Data used for the analysis were presented in table 15. In 2011 the average for EU-27 was 2.02% GDP with public expenditure accounting for 0.75% GDP and business expenditure representing 1.27% GDP. Finland, Denmark and Sweden formed the leading trio again. In those economies more than 3% GDP was spent on R&D. Poland was one of those EU-27 economies that spend less than 1% on R&D. In 2011 public expenditure on R&D in Poland stood for 0.53% GDP and private expenditure on R&D in Poland accounted for 0.23% GDP only. Undoubtedly it's one of the biggest barriers for higher innovativeness of the Polish economy and higher level of its competitiveness. Surprisingly business expenditure on innovation other than R&D looked a bit better in Poland (1%, that is 200% of the EU-27 average).

Table 15. Financial aspects of innovation activity in EU-27 countries (% GDP, year 2011)

Country	Public expenditure on R&D	Business expenditure on R&D	Business expenditure on innovation (other than R&D)	Country	Public expenditure on R&D	Business expenditure on R&D	Business expenditure on innovation (other than R&D)
EU-27	0.75	1.27	0.56	Latvia	0.50	0.19	0.36
Austria	0.87	1.87	0.35	Malta	0.24	0.49	0.96
Belgium	0.65	1.37	0.53	Netherlands	0.97	0.89	0.61
Bulgaria	0.26	0.3	0.28	Germany	0.94	1.9	0.88
Cyprus	0.33	0.08	1.66	<b>POLAND</b>	<b>0.53</b>	<b>0.23</b>	<b>1.02</b>
Denmark	0.99	2.09	0.51	Portugal	0.69	0.73	0.53
Estonia	0.87	1.49	1.03	Czech Rep.	0.72	1.11	0.69
Finland	1.09	2.34	0.51	Romania	0.31	0.17	0.46
France	0.8	1.43	0.25	Slovakia	0.43	0.25	0.65
Greece	0.43	0.17	0.74	Slovenia	0.64	1.42	0.56
Spain	0.64	0.67	0.39	Sweden	1.03	2.34	0.64
Ireland	0.55	1.17	0.30	Hungary	0.43	0.75	0.4
Lithuania	0.68	0.24	1.27	United Kingdom	0.64	1.09	b.d.
Luxembourg	0.45	0.98	0.19	Italy	0.53	0.68	0.59

Source: Innovation Union Scoreboard 2013, European Commission, Brussels 2013.

Table 16 shows direct effects of R&D activity in the form of patents, trademarks and designs for twenty seven EU economies. Poor condition of the Polish economy is easily visible here. In 2010 number of patent applications in European Patent Office by the Polish citizens amounted to 8 per one million of population, while the average for the EU-27 was over 108 per one million of population, and countries like Germany, Denmark, Finland presented more than 200 applications per one million population, and the leading one – Sweden – more than 300 applications per one million population. A similar situation was observed with respect to the number of patents granted by the US Patent Office. Data for the years 2010-2012 were the following: the average for the EU-27 – 69.1 and 52.1 per one million population, while the number of patents granted to the Polish citizens: 1.5 and 1.8 per one million population respectively.

Table 16. Direct effects of R&amp;D activity in EU-27 economies

Country	Patents in EPO* 2010	Community Trademarks ** 2008	Community Design *** 2008	Patents in US Patent Office **** 2010	Patents in US Patent Office **** 2012
EU-27 average	108.6	122.4	120.3	69.1	52.1
Austria	188.3	241.1	221.2	107.7	68.1
Belgium	130.5	127.7	102.9	81.5	54.5
Bulgaria	1.6	36.2	12.5	8.1	2.5
Cyprus	13.0	223.2	11.3	5.0	1.2
Denmark	241.7	205.1	278.1	138.0	101.4
Estonia	38.1	65.6	26.1	11.2	2.2
Finland	217.7	141.7	145.1	229.0	168.1
France	135.1	94.2	101.9	78.5	58.4
Greece	6.7	36.6	11.4	4.8	2.2
Spain	31.6	151.7	95.3	10.7	9.0
Ireland	79.1	171.7	42.0	61.1	41.0
Lithuania	6.5	33.1	12.8	2.5	4.3
Luxembourg	165.9	1225.8	738.8	88.0	66.7
Latvia	10.7	35.3	23.8	1.9	0.5
Malta	13.5	228.2	26.7	7.2	4.8
Netherlands	193.4	196.8	159.4	115.7	103.1
Germany	265.6	188.8	244.5	166.6	123.2
<b>POLAND</b>	<b>8.0</b>	<b>41.9</b>	<b>49.8</b>	<b>1.5</b>	<b>1.8</b>
Portugal	10.2	108.1	75.3	3.2	2.9
Czech Rep.	25.5	43.5	61.6	7.7	5.3
Romania	1.9	12.4	2.0	0.7	0.6
Slovakia	6.0	31.1	24.8	3.5	2.2
Slovenia	81.7	103.4	54.4	12.7	7.3
Sweden	306.7	175.3	176.0	170.5	132.9
Hungary	20.2	27.6	19.5	9.8	7.2
United Kingdom	76.5	139.0	71.1	81.1	60.8
Italy	73.3	120.6	174.4	37.3	31.5

\* - number of patent applications in European Patent Office per 1 million population

\*\* - number of new Community trademarks per 1 million population

\*\*\* - number of new Community designs per 1 million population

\*\*\*\* - number of patents granted by US Patent office per 1 million population

Source: Innovation Union Scoreboard 2013, European Commission, Brussels 2013 and

[http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php?title=File:Patent\\_applications\\_to\\_the\\_EPO\\_and\\_patents\\_granted\\_by\\_the\\_USPTO,\\_2001-2010.png&filetimestamp=20121016060342](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php?title=File:Patent_applications_to_the_EPO_and_patents_granted_by_the_USPTO,_2001-2010.png&filetimestamp=20121016060342), viewed on December 10<sup>th</sup>, 2013 and US Patent & Trademark Office, [http://www.uspto.gov/web/offices/ac/ido/oeip/taf/cst\\_all.htm](http://www.uspto.gov/web/offices/ac/ido/oeip/taf/cst_all.htm), viewed on December 10<sup>th</sup>, 2013.

Table 17 presents data concerning economic outputs of knowledge activity, like employment in knowledge intensive activity, export of knowledge intensive services, sales of new products, share of SME introducing product and/or process innovations, as well as revenues from patents and licences. Again a huge distance between Poland and most EU economies was observed. In 2011 the share of employment in knowledge-intensive activity in EU-27 was 13.6%, with Luxembourg, the United Kingdom and Sweden approaching 20%, while in Poland it was just 9.3% (a worse situation was characteristic for Bulgaria, Romania, Lithuania and Latvia only). Export of knowledge intensive services stood for more than 45% of EU-27 total export of services, while in Poland it accounted for 26% only. Almost 40% of EU small and medium enterprises introduced product and/or process innovations in 2010; in Poland only 14% of enterprises did so. Revenues from patents and licenses constituted 0.05% of Poland's GDP in 2011, with the average for the EU-27 amounting to 0.58% GDP, and the maximum in the Netherlands and Ireland reaching 1.8% GDP. Therefore, hypothesis according to which low level of



innovativeness of the Polish economy is one of crucial barriers for its further competitive development, is true.

Table 17. Economic outputs of knowledge activity in EU-27 countries

Country	Employment in knowledge intensive activity *2011	Export of knowledge intensive services ** 2010	Sales of new products *** 2010	SME enterprises introducing product/process innovations****2010	Revenues from patents and licenses ***** 2011
EU-27 average	13.60	45.14	14.37	38.44	0.58
Austria	14.00	22.21	11.92	42.20	0.19
Belgium	14.80	41.32	12.36	50.34	0.50
Bulgaria	8.40	26.84	7.58	16.59	0.03
Cyprus	15.00	48.48	14.70	34.80	0.01
Denmark	15.60	63.33	14.96	41.60	0.79
Estonia	10.70	37.40	12.31	45.56	0.10
Finland	15.30	35.93	15.29	44.75	1.22
France	14.40	32.58	14.73	32.68	0.57
Greece	11.30	5.38	19.23	37.31	0.02
Spain	11.80	21.61	18.97	28.09	0.07
Ireland	19.80	67.43	9.32	45.50	1.80
Lithuania	9.00	13.69	6.64	21.39	0.00
Luxembourg	20.00	67.43	8.27	47.90	0.78
Latvia	9.10	35.32	3.14	15.78	0.04
Malta	16.40	13.63	7.41	28.96	0.30
Netherlands	14.90	26.31	10.45	46.02	1.80
Germany	15.10	56.70	15.50	57.00	0.40
<b>POLAND</b>	<b>9.30</b>	<b>26.14</b>	<b>8.00</b>	<b>14.36</b>	<b>0.05</b>
Portugal	9.10	28.99	14.30	45.57	0.03
Czech Rep.	12.30	27.26	15.25	33.01	0.05
Romania	6.50	43.03	14.28	13.17	0.13
Slovakia	10.50	19.63	19.23	26.02	0.00
Slovenia	13.70	20.91	10.65	32.61	0.17
Sweden	17.40	38.70	8.37	47.38	1.16
Hungary	13.10	26.55	13.68	16.76	0.74
United Kingdom	17.60	57.59	7.31	21.26	0.58
Italy	13.40	27.19	14.86	39.80	0.17

\* - number of people employed in knowledge intensive activity as % of labour force (knowledge intensive area is the one where at least 33% of employed are people with higher education); \*\* - as % of total exports of services

\*\*\* - as % of total turnover of enterprise sector; \*\*\*\* - as % total number of SME enterprises; \*\*\*\*\* - as % GDP

Source: Innovation Union Scoreboard 2013, European Commission, Brussels 2013.

### Poland and other EU-27 economies in competitiveness rankings – changes over time

Negative processes and occurrences experienced by EU member economies during the time of financial crisis and economic instability adversely affected their international competitiveness. Tables 17. and 18. present competitive position of EU economies according to Institute for Management Development, Lausanne and World Economic Forum, Geneva. Particular attention was given to Poland. According to World Competitiveness Yearbook published by Institute for Management Development in 2007 four EU members were classified among the top ten most competitive economies: Luxembourg (4<sup>th</sup> place), Denmark (5<sup>th</sup> position), the Netherlands (8<sup>th</sup> place) and Sweden (9<sup>th</sup> position). Three more took places in the second ten (Austria – 11<sup>th</sup>, Ireland – 14<sup>th</sup> and Finland – 17<sup>th</sup>). Poland was classified on the 52<sup>nd</sup> position, as the least competitive

economy of all twenty seven EU countries. Relatively low level of competitiveness of Romania, Bulgaria and Italy placed those three economies in the fifth ten of the analysed ranking. From 2011 to 2013 just two EU members could be found among the ten leaders of competitiveness: Sweden and Germany. According to World Competitiveness Yearbook the competitive position of Greece deteriorated to the greatest extent. Greece was classified on the 54<sup>th</sup> position in 2012, 58<sup>th</sup> place a year earlier and 56<sup>th</sup> place in 2011. Between 2007 and 2013 the position of Greece dropped by eighteen places (between 2007 and 2012 by twenty two). One should stress a significant improvement of the position of Poland: in 2010-2013 Poland was classified on the 32<sup>nd</sup> – 34<sup>th</sup> place, which means its position was improved by nineteen places between 2007 and 2013. In 2013 Poland was considered more competitive than twelve other members of the EU; Poland left the Czech Republic, Estonia, Latvia, Italy, Spain, Portugal, Slovakia, Hungary, Slovenia, Greece, Romania and Bulgaria behind.

Table 17. Ranking of EU-27 economies according to World Competitiveness Scoreboard 2007-2013

Country	2013 rank	2013 score	2012 rank	2011 rank	2010 rank	2009 rank	2008 rank	2007 rank	Rank change between 2007 and 2013
Sweden	4	90.531	5	4	6	6	9	9	+5
Germany	9	86.197	9	10	16	13	16	16	+7
Denmark	12	83.514	13	12	13	5	6	5	-7
Luxembourg	13	83.305	12	11	11	12	5	4	-9
Netherlands	14	83.158	11	14	12	10	10	8	-6
Ireland	17	79.591	20	24	21	19	12	14	-3
United Kingdom	18	79.150	18	20	22	21	21	20	+2
Finland	20	78.187	17	15	19	9	15	17	-3
Austria	23	74.711	21	18	14	16	14	11	-12
Belgium	26	73.133	25	23	25	22	24	25	-1
France	28	71.327	29	29	24	28	25	28	0
Lithuania	31	66.488	36	45	43	31	36	31	0
<b>POLAND</b>	<b>33</b>	<b>65.437</b>	<b>34</b>	<b>34</b>	<b>32</b>	<b>44</b>	<b>44</b>	<b>52</b>	<b>+19</b>
Czech Republic	35	64.614	33	30	29	29	28	32	-3
Estonia	36	64.422	31	33	34	35	23	22	-14
Latvia	41	58.678	I.d.	I.d.	I.d.	I.d.	I.d.	I.d.	I.d.
Italy	44	56.328	40	42	40	50	46	42	-2
Spain	45	56.289	39	35	36	39	33	30	-15
Portugal	46	56.225	41	40	37	34	37	39	-7
Slovakia	47	54.485	47	48	49	33	30	34	-13
Hungary	50	53.497	45	47	42	45	38	35	-15
Slovenia	52	50.996	51	51	52	32	32	40	-12
Greece	54	49.986	58	56	46	52	42	36	-18
Romania	55	49.703	53	50	54	54	45	44	-11
Bulgaria	57	47.800	54	55	53	38	39	41	-16

Source: Compiled from World Competitiveness Yearbook 2007, IMD, Lausanne 2007, World Competitiveness Yearbook 2008, IMD, Lausanne 2008, World Competitiveness Yearbook 2009, IMD, Lausanne 2009, World Competitiveness Yearbook 2010, IMD, Lausanne 2010, World Competitiveness Yearbook 2011, IMD, Lausanne 2011, World Competitiveness Yearbook 2012, IMD, Lausanne 2012, World Competitiveness Yearbook 2013, IMD, Lausanne 2013.

A “competitive” competitiveness report is published by World Economic Forum. According to Global Competitiveness Report 2007/2008 six EU economies were so competitive as to be put into the top ten leading economies in the world: Denmark (3<sup>rd</sup> position), Sweden (4<sup>th</sup> place), Germany (5<sup>th</sup> place), Finland (6<sup>th</sup> place), the United Kingdom (9<sup>th</sup> position) and the Netherlands (10<sup>th</sup> place). Bulgaria, Romania and Greece

were considered the least competitive members of the EU in 2007/2008 and classified in the seventh and eighth ten of the Report. During the period of global financial crisis and economic instability competitiveness of the Greek and Slovak economies worsened considerably – between 2007/2008 and 2013/2014 their positions dropped by twenty six places and thirty seven places respectively. One should also stress the fact of considerable deterioration of competitive position of some other EU economies, namely: Slovenia (by 23 positions), Hungary (by 16 places), the Czech Republic (by 13 places), Portugal (by 11 places). In Global Competitiveness Report 2007/2008 Poland took the 51<sup>st</sup> position, while since 2010/2011 ranking it has been put on the 39<sup>th</sup> – 42<sup>nd</sup> places. That means that the experts of World Economic Forum also noted relative improvement of the Polish economy standing at the time of global instability.

Table 18. Ranking of EU-27 economies according to Global Competitiveness Index 2007/2008 - 2013/2014

Country	2013/14 Rank	2013/14 Score	2012/13 Rank	2011/12 Rank	2010/11 Rank	2009/10 Rank	2008/09 Rank	2007/08 rank	Rank change between 2007/08 and 2013/14
Finland	3	5.54	3	4	7	6	6	6	+3
Germany	4	5.51	6	6	5	7	7	5	+1
Sweden	6	5.48	4	3	2	4	4	4	-2
Netherlands	8	5.42	5	7	8	10	8	10	+2
United Kingdom	10	5.37	8	10	12	13	12	9	-1
Denmark	15	5.18	12	8	9	5	3	3	-12
Austria	16	5.15	16	19	18	17	14	15	-1
Belgium	17	5.13	17	15	19	18	19	20	+3
Luxembourg	22	5.09	22	23	20	21	25	25	+3
France	23	5.05	21	18	15	16	16	18	-5
Ireland	28	4.92	27	29	29	25	22	22	-6
Estonia	32	4.65	34	33	33	35	32	27	-5
Spain	35	4.57	36	36	42	33	29	29	-6
Malta	41	4.50	47	51	50	52	52	56	+15
<b>POLAND</b>	<b>42</b>	<b>4.46</b>	<b>41</b>	<b>41</b>	<b>39</b>	<b>46</b>	<b>53</b>	<b>51</b>	<b>+9</b>
Czech Republic	46	4.43	39	38	36	31	33	33	-13
Lithuania	48	4.41	45	44	47	53	44	38	-10
Italy	49	4.41	42	43	48	48	49	46	-3
Portugal	51	4.40	49	45	46	43	43	40	-11
Latvia	52	4.40	55	64	70	68	54	45	-7
Bulgaria	57	4.31	62	74	71	76	76	79	+22
Cyprus	58	4.30	58	47	40	34	40	55	-3
Slovenia	62	4.25	56	57	45	37	42	39	-23
Hungary	63	4.25	60	48	52	58	62	47	-16
Romania	76	4.13	78	77	67	64	68	74	-2
Slovakia	78	4.10	71	69	60	47	46	41	-37
Greece	91	3.93	96	90	83	71	67	65	-26

Source: Compiled from The Global Competitiveness Report 2007-2008, WEF, Geneva 2007, The Global Competitiveness Report 2008-2009, WEF, Geneva 2008, The Global Competitiveness Report 2009-2010, WEF, Geneva 2009, The Global Competitiveness Report 2010-2011, WEF, Geneva 2011, The Global Competitiveness Report 2011-2012, WEF, Geneva 2011, The Global Competitiveness Report 2012-2013, WEF, Geneva 2012, The Global Competitiveness Report 2013-2014, WEF, Geneva 2013.

## Conclusion

Poland is an open economy. It actively participates in international division of labour and develops trade and investment relations. Poland's accession to the European Union in 2004 created favourable conditions for its further socio-economic development. Membership in the European Union was also a challenge for the Polish economy, Polish

companies and Polish citizens. Global financial crisis and economic instability in the world economy adversely affected most EU member economies. The Polish economy avoided the recession in 2009 and seemed to be comparatively stable in the period of global economic instability 2008+. Building higher level of international competitiveness of the Polish economy requires promoting export activity, enriching attractiveness of the Polish economy for the inflow of FDI and strengthening investment aggressiveness of the Polish companies in the world market. The analysis of competitiveness rankings proved considerable improvement of the competitive position of the Polish economy. Both experts from World Economic Forum, Geneva and the ones from Institute for Management Development, Lausanne positioned Poland much higher in 2013 than in 2007. Poland was classified on the 33<sup>rd</sup> place in World Competitiveness Scoreboard 2013 (in 2007 it was the 52<sup>nd</sup> place), while in Global Competitiveness Report 2013/2014 it was put on the 42<sup>nd</sup> position (in 2007/2008 it was the 51<sup>st</sup> position).

### References

- Adams, S. (2013), The World's Most Competitive Countries, <http://www.forbes.com/sites/susanadams/2013/05/30/the-worlds-most-competitive-countries/>, viewed 20<sup>th</sup> April, 2014.
- ATKearney (2014), Country Competitiveness, <https://www.atkearney.com/gbpc/country-competitiveness>, viewed 19<sup>th</sup> April, 2014.
- Bloch, H. & Kenyon, P. (2001), Creating an Internationally Competitive Economy, Palgrave Publishers.
- Central Statistical Office (2008), Yearbook of Foreign Trade Statistics of Poland 2008, Warsaw.
- Central Statistical Office (2009), Poland in the European Union 2009, Warsaw.
- Central Statistical Office (2010), Poland in the European Union 2010, Warsaw.
- Central Statistical Office (2009), Yearbook of Foreign Trade Statistics of Poland 2009, Warsaw.
- Central Statistical Office (2010), Yearbook of Foreign Trade Statistics of Poland 2010, Warsaw.
- Central Statistical Office (2011), Yearbook of Foreign Trade Statistics of Poland 2011, Warsaw.
- Central Statistical Office (2012), Yearbook of Foreign Trade Statistics of Poland 2012, Warsaw.
- Central Statistical Office (2013), Yearbook of Foreign Trade Statistics of Poland 2013, Warsaw.
- Council on Competitiveness (2014a), Drive Innovation and Competitiveness, <http://www.compete.org/explore/drive-innovation-entrepreneurship/>, viewed 20<sup>th</sup> April, 2014.
- Council on Competitiveness (2014b), Engage the Global Economy, <http://www.compete.org/explore/global-economy/>, viewed 20<sup>th</sup> April, 2014.

- Council on Competitiveness (2014c), Manage Risk and Achieve Resilience, <http://www.compete.org/explore/risk-resilience/>, viewed 20<sup>th</sup> April, 2014.
- Council on Competitiveness (2014d), Secure Energy and Create Sustainability, <http://www.compete.org/explore/energy-and-sustainability/>, viewed 20<sup>th</sup> April, 2014.
- Council on Competitiveness (2014e), Win the Skills Race, <http://www.compete.org/explore/skills-race/>, viewed April 20<sup>th</sup>, 2014.
- Council on Competitiveness (2012), A Clarion Call for Competitiveness, Washington.
- European Commission (2013), Innovation Union Scoreboard 2013, Brussels.
- EUROSTAT, <http://epp.eurostat.ec.europa.eu/>, viewed on 28<sup>th</sup> February, 2014.
- EUROSTAT, [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php?title=File:Lifelong\\_learning,\\_2006\\_and\\_2011\\_%28%25\\_of\\_the\\_population\\_aged\\_25\\_to\\_64\\_participating\\_in\\_education\\_and\\_training%29.png&filetimestamp=20121001105931](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php?title=File:Lifelong_learning,_2006_and_2011_%28%25_of_the_population_aged_25_to_64_participating_in_education_and_training%29.png&filetimestamp=20121001105931), viewed on 10<sup>th</sup> December, 2013.
- EUROSTAT, [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php?title=File:Patent\\_applications\\_to\\_the\\_EPO\\_and\\_patents\\_granted\\_by\\_the\\_USPTO,\\_2001-2010.png&filetimestamp=20121016060342](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php?title=File:Patent_applications_to_the_EPO_and_patents_granted_by_the_USPTO,_2001-2010.png&filetimestamp=20121016060342), viewed on 10<sup>th</sup> December, 2013.
- Fagerberg, J. (1988), International Competitiveness, "The Economic Journal" No. 391.
- Hickman, B.G. (1992), International Productivity and Competitiveness, Oxford University Press.
- Institute for Management Development (2007), World Competitiveness Yearbook 2007, Lausanne.
- Institute for Management Development (2008), World Competitiveness Yearbook 2008, Lausanne.
- Institute for Management Development (2009), World Competitiveness Yearbook 2009, Lausanne.
- Institute for Management Development (2010), World Competitiveness Yearbook 2010, Lausanne.
- Institute for Management Development (2011), World Competitiveness Yearbook 2011, Lausanne.
- Institute for Management Development (2012), World Competitiveness Yearbook 2012, Lausanne.
- Institute for Management Development (2013), World Competitiveness Yearbook 2013, Lausanne.
- Misala, J. (1994), Teoretyczne podstawy międzynarodowej konkurencyjności gospodarki narodowej, Warsaw School of Economic, Working Paper No. 141.
- OECD (2001), OECD Glossary of Statistical Terms, <http://stats.oecd.org/glossary/detail.asp?ID=399>, viewed 12<sup>th</sup> April, 2014.

- Porter, M.E. (1990), The Competitive Advantage of Nations, "Harvard Business Review", No. March-April.
- UNCTAD, (2010), World Investment Report: Investing in a Low-Carbon Economy. Country Fact Sheet: Poland.
- UNCTAD, (2013), World Investment Report 2013: Global Value Chains: Investment and Trade for Development. Country Fact Sheet: Poland.
- US Patent & Trademark Office,  
[http://www.uspto.gov/web/offices/ac/ido/oeip/taf/cst\\_all.htm](http://www.uspto.gov/web/offices/ac/ido/oeip/taf/cst_all.htm), viewed on 10<sup>th</sup> December, 2013.
- World Economic Forum (2007), The Global Competitiveness Report 2007-2008, Geneva.
- World Economic Forum (2008), The Global Competitiveness Report 2008-2009, Geneva.
- World Economic Forum (2009), The Global Competitiveness Report 2009-2010, Geneva.
- World Economic Forum (2010), The Global Competitiveness Report 2010-2011, Geneva.
- World Economic Forum (2011), The Global Competitiveness Report 2011-2012, Geneva.
- World Economic Forum (2012), The Global Competitiveness Report 2012-2013, Geneva.
- World Economic Forum (2013), The Global Competitiveness Report 2013-2014, Geneva.
- World Trade Organization (2011), International Trade Statistics 2011,  
[http://www.wto.org/english/res\\_e/statis\\_e/its2011\\_e/its2011\\_e.pdf](http://www.wto.org/english/res_e/statis_e/its2011_e/its2011_e.pdf) , viewed 12<sup>th</sup> September 2013.
- World Trade Organization (2013), International Trade Statistics 2013,  
[http://www.wto.org/english/res\\_e/statis\\_e/its2013\\_e/its2013\\_e.pdf](http://www.wto.org/english/res_e/statis_e/its2013_e/its2013_e.pdf), viewed 12<sup>th</sup> September 2013.
- Zimny, Z (2012), Inward FDI in Poland and its policy context, 2012, (in: ) Sauvant, K.P (ed.) Columbia FDI Profiles. Country profiles of inward and outward foreign direct investment, VALE Columbia Center on Sustainable International Investment, April 2012, [http://www.vcc.columbia.edu/files/vale/documents/Poland\\_IFDI\\_-\\_FINAL\\_-\\_2012\\_24\\_April\\_2012.pdf](http://www.vcc.columbia.edu/files/vale/documents/Poland_IFDI_-_FINAL_-_2012_24_April_2012.pdf), viewed 15<sup>th</sup> September, 2013.
- Zimny, Z (2013), Outward FDI from Poland and its policy context, 2012, (in: ) Sauvant, K.P (ed.) Columbia FDI Profiles. Country profiles of inward and outward foreign direct investment, VALE Columbia Center on Sustainable International Investment, January 2013,  
[http://www.vcc.columbia.edu/files/vale/documents/Poland\\_OFDI\\_-\\_14\\_Jan\\_2013\\_-\\_FINAL\\_0.pdf](http://www.vcc.columbia.edu/files/vale/documents/Poland_OFDI_-_14_Jan_2013_-_FINAL_0.pdf), viewed 15<sup>th</sup> September, 2013.