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The socio-economic effects of Poland's membership in the European Union and the challenges of the middle-income trap

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Abstract. Authors analyze economic development of Poland in the period 2004-2015 in the context of both the impact of the membership of the European Union on the country's economy and of the middle-income trap into which, as some experts assert, the country has most likely fallen despite relatively dynamic economic growth. In our opinion the impact of the EU membership, which stems i.a. from the infusion of the Cohesion Policy's co-financing and – which appears to be more even important from the perspective of long-term development - from the establishment of effective mechanisms for conducting conscious development policy based on identifying and pursuing long-term strategic goals, is highly positive. The progress in catching up with the average development level of the EU countries is slowing, however, and there are indications that the country has already fallen into the middle-income trap. Authors discuss various factors contributing to Poland's susceptibility to the said trap, enumerating i.a. insufficient rate of bridging the productivity gap vis-à-vis the EU average, which in turn stems from insufficient level of innovation, suboptimal quality of the institutional and regulatory conditions and the deteriorating demographic structure. We also assert that unless decisive strategic actions are designed and implemented all those factors will have increasingly negative impact on the development of the Polish economy. Finally authors underline that far-sighted development plans do exist, but at the same time indicate that far-reaching efforts will be required to modify the model of economic development and to meet the set strategic objectives.

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INTRODUCTION

The challenges and problems faced by integrating Europe call for the EU to adopt a strategy and implement it in a consistent manner. Poland, and all other Member States have a wide spectrum of choice of objectives and priorities. The fact that at one hand those countries share common experiences, while on the other face specific individual conditions determines both their strategy and the current actions.

In an era of globalization, characterized by growing international interdependencies, the challenges for the Polish development policies stem from the complexity, strength and volatility of the main factors determining the processes of socio-economic and civilizational development.

The situation of Poland, its interests, strategies, current policy, and development processes have both endogenous and exogenous origins. Therefore, it is necessary to focus i.a. on the transnational and Pan-European challenges which are important also for Poland.

First of all, there are the mechanisms and consequences of the global economic crisis, tensions and dysfunctions in the euro area, population aging, globalization (especially in the economic, technological – including IT - and social dimension) and climate change. For over a year now the EU decision-makers and societies have been also focused on the expanding influx of political refugees and economic migrants from Africa and the Middle East.

In such a context we discuss the issue of the middle-income trap. One of the premises of Poland's falling into the said trap is the insufficient pace of bridging the productivity gap towards more developed Member States. The vulnerability of the Polish economy in this respect is correlated with both insufficient innovativeness and the low quality of the institutional and regulatory conditions.

The deteriorating demographic structure, together with the resultant growth in the demographic burden, constituted another factor conducive to the country's falling into the middle-income trap. It is evident that the above-mentioned factors will also impact the development of the Polish economy in an increasingly negative way.

We therefore pose the question whether having abandoned, in the transformation process so far, the expansion and modernization of its production base, Poland is condemned to the role of the "perennial subcontractor", occupying low levels of global of value creation chains controlled by entities from developed countries (including those, which successfully avoided the middle-income trap thanks to well-designed economic policies)?

POLAND'S DEVELOPMENT IN THE CONTEXT OF THE CHALLENGES FOR THE EUROPEAN UNION

Due to the uncertainty of future external conditions, and to the necessity to undertake structural reforms (i.a. reforms of the public finance sector) aimed at increasing the pro-development activities, further narrowing of the development gap between Poland and the more developed EU countries calls for the development policy capable of stimulating economic growth based primarily on higher innovativeness and competitiveness.

Launching of a new growth model requires also the further development of key network infrastructure (transport, energy, broadband networks), and improvement in factors other than – already declining – price competitiveness of the labor force. It demands productivity growth and resource efficiency.

Poland possesses strong, though in our opinion still inadequate, development foundations established thanks to consistent civilizational, political, social and economic transformations of the last two decades. It should be also stressed that the EU membership allowed to accelerate economic growth, with simultaneous improvement of the institutional and regulatory sphere.

However, the transformation effort and the EU membership have yet to completely overcome the developmental backwardness which existed at the time of espousing market reforms. Moreover, due to globalization and to development processes observed on a national and global scale, the importance of the country's strengths and weaknesses as determinants of development processes becomes increasingly profound.

Maintaining a high rate of convergence towards high developed EU countries requires both continued high pace of economic growth, in the conditions of the economic slowdown observed recently on the global and European scale and ability to escape from the middle-income trap. However, the European Commission's Innovation Union Scoreboard 2015, classifies Poland as a „moderate innovator", on account of its innovation index being lower than the EU average (European Commission, 2015, p. 10). The OECD study „Looking to 2060: Long-Term Global Growth Prospects" (OECD, 2012, p. 31), which predicts that in the period 2011-2030 Poland's average rate of economic growth (2.6%) will be much lower than in the years 1996-2011 (4.3%), calls for efforts aimed at increasing the rate of future growth.

In this context it should be also mentioned that the 6 Cohesion Report invokes the index of Enterpreneurship and Regional Development (so-called REDI) (European Commission, 2014, p 28), and enumerates entrepreneurial activities among main factors of economic recovery and of employment growth. Entrepreneurship is sometimes regarded as a fourth factor of production alongside labor, land and capital. Compared to highest ranked Danish or Swedish regions, the Central and Eastern European countries still lag significantly behind in terms of promoting entrepreneurship, stimulating growth of enterprises and improving the business climate. For example, six Polish regions covered by the ranking were classified in positions from 86 to 106 (European Commission, 2014, p. 26-28).

In terms of development potential conducive to overcoming the middle-income trap Poland's major assets encompass i.a.:

a) the country's stable international position in the sphere of security, stemming from membership in European and Euroatlantic structures.
b) ability to maintain positive GDP growth rate and a stable macroeconomic situation in the challenging international environment,
c) location on international transport routes which are part of the TEN-T network (ie. Baltic-Adriatic and the North Sea-Adriatic corridors), d) precious environmental resources, well-developed network of environmentally protected areas and high diversity of natural environment and landscape as well as high attractiveness in terms of tourism.
d) a systematic increase in the share of people with tertiary educationand one of the lowest indicators of early school leavers in Europe ,
e) favorable - polycentric - settlement of a network of cities and dense spatial arrangement in regions.

The above mentioned assets constitute an auspicious starting point for the modernization efforts required to face the long-term challenges in order to make Poland a prosperous, well-organized country, with firmly established conditions for sustainable development.

Simultaneously, due attention should be also paid to evident weaknesses of the Polish economy, which include i.a.: excess of legislative acts (coupled with their inconsistency and ambiguity), attendant lack of legal stability (due to frequent changes in regulations); still unsatisfactory level of innovativeness resulting from i.a. unfavorable structure of the R&D sector's financing (predominance of public funds), low share of high and medium technology goods in both the sold production of industry and exports, as well as relatively high level of risk of poverty and social exclusion.

The continued elimination of backwardness and coping with developmental challenges (both already defined and so far unidentified ones) require conducting goal-driven policy of development) that guarantees improved level and quality of life and thereby strengthens the economic potential of the country. The overarching objective is to build a modern economy capable of competing in global markets on the basis of growing innovativeness and efficiency.

The current model of economic development, applied at the national and regional level, is based on competitive advantages – such as low labor costs - which lose their importance (as emphasized, i.a. in the report on the development conditions of the manufacturing sector worldwide published by Boston Consulting Group at the end of April 2014). It is therefore necessary to develop and strengthen new assets based on knowledge and advanced technologies. At the same time enterprises which use older business models and production technologies are in need of extensive modernization congruent with introduction of comprehensive organizational, technological, and marketing innovations.

As far as the Polish economy's mid and long-term development opportunities are concerned, to focus should be primarily placed on:

a) the growing economic interdependence between countries, resulting from the progressing globalization and the development of digital technologies (which should gain importance in various dimensions of the economy, such as international cooperation, labor market, and public administration)
b) intensifying economic and financial integration in the global and regional dimension, (including Poland's position in the EU),
c) even more effective targeting of the EU funds for financing pro-development expenditures,
d) improving the average life expectancy in good health for women and men, in order to increases the number of qualified and experienced participants in the labor market,
e) using alternative energy sources, in particular renewable energy sources and nuclear energy,
f) stimulating the development of non-agricultural activities in the rural areas and diversification of agricultural activities,
g) preserving and promoting the potential of natural environment in order to create opportunities for sustainable development of the country and regions.

An efficient and well-functioning development management system will be instrumental in attaining Poland's development objectives. The experience of EU membership indicates that properly defining the said objectives and assuring their implementation depend not only on the amount of available financial resources, but also of the effective management system of the public sector. The quality of the system's functioning determines to a large extent the state's or the region's ability to adequately respond to strategic issues and global challenges. The further development of Poland hinges on an adoption of modern and bold development vision and on its consistent implementation. Responding to arising needs, authorities have adopted key strategic documents which delineate the main directions of development and the way of their implementation - both in the long term and in the medium term. These documents include i.a. *Long-term National Development Strategy 2030. Third Wave of Innovation* as well as mid-term strategies (with the *Medium-Term National Development Strategy 2020* elaborated by the former government, having been recently modified in the framework of Responsible Development Plan of the current government. The latter plan will serve as a base for formulating the detailed new mid-term development strategy). The system in which development strategies are implemented through comprehensive sectoral strategies and development programs should ensure coherence of conducted development policy and of its results.

THE IMPACT AND IMPORATNCE OF COHESION POLICY ON ACHIEVING DEVELOPMENT GOALS

The pro-investment character of EU cohesion policy should be emphasized here. In the context of both the ambitious goals espoused in the Europe 2020 Strategy and the reform of cohesion policy for the 2014-2020 perspective, the said policy constitutes a key EU investment policy. Investments pursued within its framework constitute on one hand an important development stimulus for the economies of the Member States, while on the other allow for continued implementation of long-term objectives. The investment character of the said policy manifests itself also in such dimension as:

– the thematic concentration of resources on selected objectives,
– support for changes/structural reforms, with a view to economic modernization,
– generation of a leverage effect, while contributing to a simultaneous increase in the financial involvement of the private sector in the implementation of development goals
– amount of funds available for Poland in the financial perspective 2014-2020 constitutes per se an important investment and pro-development impulse.

Particular attention should be paid to the impact of the cohesion policy in the period of the economic crisis. In the years of a significant decline in public investment (20% in real terms since 2008 on average in the EU, with some countries particularly affected by the crisis, such as Greece and Spain - observing a decrease of 60%), cohesion policy constituted significant source of investment financing. The hitherto impact of the said policy on the socio-economic development of Poland is unambiguously positive, with the European funds positively affecting economic growth, investment activity, labor market as well as internal and external balance of the economy.

With the support of the EU funds the development policy of state and of local self-governments shielded Poland from the effects of the global crisis. Ambitious, often stringent requirements set for investment projects by the EU legal regime have been of key importance to achieving positive GDP growth in Poland, even during the economic crisis in the global economy and in Europe. The last 11 years have been, thanks i.a. to European funding, a period of intense changes in the Polish regions. The use of the EU funds allowed to accelerate the process of the economy's real convergence to the more developed EU countries. The said funds led also to a perceptible growth in employment and to attendant fall in unemployment. The positive effects of European cohesion policy are visible in the creation of new jobs, improvement of workers' skills and their better adaptation to changing labor market conditions.

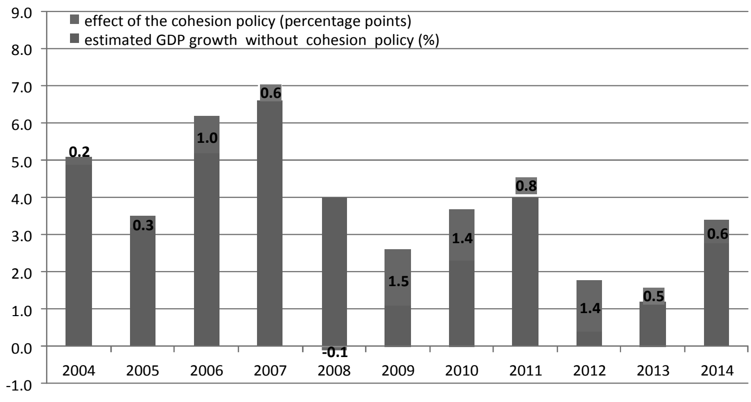

Chart 1. Impact of the cohesion policy on the pace of GDP growth in Poland between 2004 and 2014

Source: Own elaboration on the basis of CSO data and the results of macroeconomic models.

The impact of cohesion policy on economic development was positive over the entire period 2004-2014 - it is estimated that approximately 20% of the average annual economic growth resulted from the implementation of projects co-financed from the EU funds. Most importantly, thanks to the said policy's implementation, Poland managed to avoid a recession in the crisis years 2009-2010 (Regional Development Agency, 2015, p. 12-14). European funds have proven capable of mitigating external shocks and helped in the implementation of the national policy of stabilization of public finances. Consequently the negative impact of the global economic crisis was in case of Poland much weaker than in other EU countries.

The use of EU funds definitely accelerated the process of real convergence of the economy towards more developed EU countries. The distance to the EU average level of development (as expressed by the GDP per capita at PPP) has narrowed in the period of the EU membership so far by 20 percentage points, of which nearly 1/4 was the result of the implementation of cohesion policy. Equally important is the fact that the said policy allows to slow down the process of internal regional differentiation and that the distance in terms of economic development between Polish regions and the EU-28 average gradually decreases, although the convergence process is uneven among individual territories.

From the point of view of maximizing the impact of the EU co-financed activities on the socio-economic development at national and regional level, it was important to plan such activities – within the framework of various programs and funds – in a way conducive to achieving synergy effects. The cohesion policy's implementation supports economic and social transformation in Poland so that towards the end of the present decade Poland should be transformed into a mature economy, endowed with a strong productive and industrial based founded on the pillars of innovativeness, efficiency and balanced territorial development.

It's our conviction that Poland should take an active part in working out - in the context of discussions on the revision of the multiannual financial framework 2014-2020 and the future EU budget, as well as new EU instruments serving to support investments (eg. The European Strategic Investment Fund) - arrangements for the financing of cohesion policy after 2020 at the EU level . The hitherto experience related to the formation of Polish national development management system and to the efficient use of EU funds for stimulating development could serve as a base for creating a model of EU development policy. The success in this area will be very important for Poland's ability to harness the said policy as one of the effective tools for escaping from the middle-income trap.

POLISH ECONOMY AND THE "MIDDLE-INCOME TRAP"

Since 1950s. it were high rates of economic growth that allowed many economies to achieve the status of a middle-income country. However, only a few of them were able to go the proverbial extra mile and join the group of developed countries, capable of achieving high level of incomes and building modern economies successfully meeting the challenges of global competition. On the other hand the growth trajectories of many developing countries, which failed to do so indicate that they have fallen into the so-called middle-income trap (also known as the "imitation trap"). The evidence of a country's falling into the said trap encompasses: long-term slowdown of economic growth and of productivity growth observed after the period of relatively dynamic growth in both these areas.

The said trap is a result of the economy's inability to move from development based on both copying technologies and products developed by economic leaders and the dominance of foreign investment to the development path founded on the country's own economic potential (including in the areas of management, technology, quality and creativity), which allows national companies to become winners in global competition (Felipe, Abdon Kumar, 2012, p. 27).

It is estimated that The Asian economies such as Taiwan, South Korea and Singapore were able to "leap over" the middle-income trap, thanks to effective structural transformations, which allowed them to produce and hence offer on global markets highly diversified goods and services. Such a success story is associated with the transition towards higher levels of sophistication and with generating higher value added of domestic production (Aiyar, Duval, Puy, Wu Zhan, 2013 , p. 6-7). It should be further stressed that the development of more advanced industries in these countries was gradual, based on the lessons drawn from the experiences of other, more „mature" sectors of the economy[1] (Aiyar, Duval, Puy, Wu, Zhan, 2013, p. 9-11).

The existence of the middle-income trap usually manifests itself in smaller increments in factor productivity growth due to both lack of innovation and given country's inability to create own competitive industries. In such economies, employment in agriculture is often excessive while exports are dominated by production of low-tech or medium-tech industries. Domestic industry, characterized by low innovativeness, is not capable of creating new technologies but imports foreign solutions instead. As a result, the economy specializes in the production of less technologically advanced goods, and domestic companies –unable to supply the world markets with the highest class products - compete on low costs.

The middle-income trap does also involve deep structural problems of the economy which prevent its transition from development based on both copying technologies and products elaborated by economic leaders and the dominance of foreign investments to one based on their own economic potential, which allows domestic companies to achieve successes in global competition.

The analysis published by the National Bureau of Economic Reserach (Eichengreen, Park Shin, 2013) pointed indirectly to the danger of Poland's falling into the analyzed trap by emphasizing that such threat can be identified in the case of a country which achieves the GDP per capita level at PPP (in constant prices of the year 2005) situated, alternatively, in one of two bands: 1) the „lower" band of USD 10,000 - 11,000; or 2) the „higher" band of USD 15,000 –16,000.

The above-mentioned cautionary scenario appears to have been corroborated by the actual developments in the Polish economy. According to the recently published report of the DNB bank entitled *Kierunki 2016. Polska w pułapce* średniego *dochodu* Poland has already fallen (in 2008) into the middle-income trap at the upper band, with the GDP per capita (at PPP) in constant 2005 prices reaching over USD 15,000.

In such a context, the question arises whether the economic and industrial policies conducted in Poland after the year 1989, which were based on the excessive reliance on „market's invisible hand", resulted not only in a failure to identify the sectors capable of serving as a base of the modernization of the production structure but also in „extinguishing" domestic production and replacing it by either imports of final goods or simple assembling of imported components. In the context of the experiences of the European Union, which recently - after years of emphasizing the importance of the services sector - professes „rehabilitation" of not only the industry, but also of the industrial policy, the Gary Backer's witticism which proclaimed that „the best industrial policy is none at all" deserves critical assessment[2].

It should be underlined that, for example, M. Orenstein in January –February 2014 issue of Foreign Affairs (Orenstein, 2014) presents a moderately flattering picture of the Polish economy. The author in question focuses in particular on the fact that the country's position as an investment location depends primarily

[1] For example, the economic policy of South Korea in different phases of development since the 1960s was aimed at supporting - in the following order – the development of: 1) light industry, 2) heavy industry (including the production of chemical products, iron and steel, shipbuilding and machine industry) and subsequently 3) electronic industry and knowledge- based industries. The development of new sectors of the economy, which expand their use of knowledge inputs and are characterized by a higher share of value-added, was supported by actions in the area of economic policy (i.a. education, infrastructure, innovation policies and financial support for enterprises)

[2] This attitude towards industrial policy was quite popular among Polish policy-makers at least at the initial stages of economic transformation.

on a deep mutually beneficial ties with Germany, the leading European economy. Stressing that Poland is the favorite localization for German manufacturers, serving as their cheap, high-quality „production platform", Orenstein nevertheless discerns limitations of this type of a growth model. Such model makes Polish economy highly dependent on the inflow of foreign investment, with the majority of big banks and companies being owned by foreign capital, and many Poles working abroad.

The term „dependent market economy" used in the article, in connection with Poland's position of „a reliable partner in the supply chain controlled by foreigners" sounds as a belated warning. The author stresses i.a. the fact that the low level of wages in the Polish economy hinders the potential of both significant improvement in quality of life and of the dynamic growth of domestic demand.

The literature emphasizes that in order to avoid the middle-income trap (or to overcome it after the country has been engulfed by it) it is necessary to pursue growth strategy consistent with establishing the ability to introduce new processes and to enter new markets in order to maintain the dynamic export growth. It is also important to stimulate the growth of domestic demand, with the growing middle class capable of using its expanding purchasing power to acquire high-quality, innovative products and hence to stimulate economic growth (Felipe, Abdon Kumar, 2012, p. 12-17). One of the biggest challenges on the path of transition from growth based on the availability of foreign capital and of domestic inexpensive labor to the path of growth based on high productivity (TFP) and innovativeness is the need to make sufficient investments in infrastructure and education (i.a. the creation of high-quality educational system conducive to stimulating creativity and supporting breakthroughs in research and technology).

Since Polish workers are aware of higher wages in more developed states, it is increasingly more difficult for manufacturers operating in the country to maintain their cost-based advantages. This problem should alert the decision-makers' to the danger of the Poland's losing attractiveness for investors as a desirable, low-wage location - with the possible future „escape" of owners of numerous foreign assembly plants and call centers in search of even cheaper labor.

Therefore, the question arises whether endogenous development conditions which exist in Poland and the development model described above are sufficient to justify the expectations that several years from now the country's GDP per capita at PPP will reach the level of the EU average. Another important question is whether upon reaching a little higher than present (68% of the EU-28 average) development level as evidenced by the GDP per capita at PPP, (e.g. at 80% of the said average) the Polish economy could enter the path „of developmental drift" - as it appears to be the case in Portugal where GDP per capita in terms of GDP average was approximately the same in 2013 (79%) as in 2002 (78%).

The development potential of the Polish economy is confirmed by the fact that in the period 2004-2015 Poland's real GDP grew at an annualized rate of 3.9%, compared with an average growth of 1.1% in the EU-28 (and 0.9% in the Euro-19 countries). In the same period, GDP per capita at PPP increased from 48% of the EU-28 in 2003 to 68% in 2014. However, the most recent developments in the country's convergence are not so optimistic, because after growing from 64% of the EU-28 average level in 2011 to 67% in 2012, the respective value for Poland didn't change in 2013 and in 2014 it increased by 1 p.p. only (signifying that annual average rate of convergence in the years 2012-2014 amounted to 0.5 p.p, which stands in stark contradiction to the earlier years of the EU membership period).

On the other hand the relative resilience to the global crisis constituted another positive feature of the Polish economy and was instrumental in the country's maintaining continuous growth, hence making Poland a "standout" among the EU member states. This was made possible mainly thanks to the domestic consumption and investment (with the latter factor significantly strengthened by the access to the EU funds).

However¸ insufficient pace of bridging the productivity gaps vis-à-vis both the EU average and the level of most developed Member States doesn't constitute a reason for excessive optimism (Czerniak, 2014, p. 15-17). Analysis of the level of labor productivity per hour of work - reflecting the level of technological and organizational progress, as well as value and quality of invested capital indicates that in the PPP terms productivity defined in such a way increased in the period 2004-2013 from 48.6% to 60% of the EU-average level. In the same period „nominal" (not taking into account the PPP) productivity per hour worked increased in Poland from EUR 7.9 to 10.6 EUR, while the respective average figure for the EU-28 countries grew from EUR 29.3 to EUR 32.1.

On the other hand – again taking the purchasing power parity into account – productivity per 1 employee increased over the same period from 60.4% to 74.4% of the EU-28 average. Thanks to relatively longer average working time per employee than in the EU, Poland manages to narrow the gap in labor productivity per person employed much faster than it is the case with productivity per time unit of work. The relatively longer period of time of work in Poland is not sufficient, however, to bridge a large part of the gap in GDP per capita relative to the EU average, which results to a large extent from both low labor productivity per unit of time worked and lower than the EU average employment rates.

The level of labor productivity depends on both investments in physical capital and the achieved technological and organizational progress, while low employment rate results from the low effectiveness of functioning of the labor market in Poland (and from other factors contributing to the economic activity of the population). In this situation, actions aimed at reducing the development gap towards the EU-28 average should be based on the acceleration of technological and organizational progress coupled with a simultaneous increase in the employment rate.

In the context of the productivity of the economy the differences in potential impact of individual sectors on the overall economic performance should be emphasized. In Poland the differences in labor productivity between sectors remain higher than in other EU countries. It is particularly evident in the case of the agricultural sector (where labor productivity amounts to less than 1/3 of the labor productivity in the entire economy), which employs - despite the outflow of workers to other, more productive sectors – over 10% of the total number of employed in the country (compared with about 1 % in Germany or the UK).

In such circumstances, attention should be also paid to the growing share of the services sector in the economy thanks to lower possibility of replacing labor with other production factors in the provision of services. Combined with slower productivity growth in services - than in other sectors – and with more or less steady wage growth in the economy it leads, regardless of differences in labor productivity, to the increases in prices of services. This phenomenon (known as „Baumol's disease") translates into slower growth in the overall economy, due to the growing share of employment in low-productive services sectors, and thus may contribute to the economy being stuck in the middle-income trap.

The need for reallocation of resources towards more productive sectors is well identified, but such shifts may lead to growing unemployment in the less productive sectors, one which will not be compensated by adequate growth of employment in more efficient, but at the same time less labor-intensive ones. On the other hand tying the production factors to less efficient sectors which do not guarantee sufficient growth in value added and in wages can lead to a permanent slowdown in labor productivity of the entire economy and consequently to the country's falling victim to the middle-income trap for the extended period.

Table 1

Poland vs. EU-28 – selected indicators

	Poland					EU-28				
	2003	2006	2009	2012	2014	2003	2006	2009	2012	2014
Investment rate - GFCF expenditures as % of GDP	18.2	19.8	21.1	19.8	19.6	21.0	22.1	20.6	19.8	19.4
in it:										
- private sector expenditures (% of GDP)	10.4	11.2	11.2	10.7	10.5	11.9	12.7	11.5	11.8	11.7
- government sector expenditures (% of GDP)	*2.8*	*4.0*	*5.1*	*4.7*	*4.5*	*3.1*	3.2	3.7	3.1	2.9
Total R&D expenditures (% of GDP)	0.54	0.55	0.67	0.89	0.94	1.8	1.78	1.94	2.01	2.03
Enterprise sector R&D expenditures (% of GDP)	0.15	0.17	0.19	0.33	0.44	1.14	1.13	1.2	1.28	1.3
Patent applications at EPO per million inhabitants (2013)	2.9	3.7	7.6	11.4	12.7	107.9	117.4	112.6	113.1	113.3
Labor productivity per 1 hour worked (EUR)	7.9	8.6	9.1	10.4	10.6	29.3	30.9	30.7	31.9	32.1
	2000	2004	**2008**	**2012**	**2014**	**2000**	**2004**	**2008**	**2012**	**2014**
sector I (agriculture, forestry and fishing)	2.9	3.1	2.9	3.0	2.9	2.0	1.6	1.5	1.7	1.6
sector II (industry and construction)	31.2	32.8	33.1	33.6	32.5	26.6	26.8	24.7	24.9	24.5
sector III (services)	65.8	64.2	64.0	63.4	64.6	71.4	71.6	73.8	73.4	73.9
Structure of employment (%)										
sector I (agriculture, forestry and fishing)	18.4	15.7	13.3	12.0	11.5	6.6	5.7	5.4	5.1	5.0
sector II (industry and construction)	28.6	30.2	30.9	30.1	30.2	25.4	24.8	23.5	22.4	21.9
sector III (services)	53.0	54.1	55.8	57.3	58.3	68.0	69.5	71.1	72.1	73.1
Labour costs*										
	2000	**2004**	**2008**	**2012**	**2014**	**2000**	**2004**	**2008**	**2012**	**2014**
Labor costs (EUR per 1 hour worked)	4.2	4.7	7.6	7.9	8.4	16.7	18.9	21.5	23.9	24.6

* Industry, construction and services (excluding public administration, defense and compulsory social security)

Source: Eurostat.

Of particular importance is also the share of more innovative and modern manufacturing and services sectors in the national economy. Priority should be assigned to attaining increased share of employment in sectors (including knowledge-based service sectors – e.g. finance and insurance, or the Information and Communication services) with higher than average productivity or decrease in employment in sectors with below average productivity. In Poland, the largest share in the value added is generated in the manufacture of low-tech goods. The subsequent places are occupied by manufacturing of medium-high technology, information and telecommunications sector and ICT services. The structure of the economy in which value-added is created primarily in low-tech and mid-tech manufacturing attests to its low level of technological sophistication (a similar situation is observed in such countries as Bulgaria, Lithuania, Estonia, Latvia, Portugal and Croatia). There are few national brands, innovativeness of Polish companies is low, while foreign companies dominate in exports and in many key industries.

Another important factors which determine the competitive capacity of the national economy, are low degree of productive use of available human resources and high dependency ratio.

In this context, the reversal of the decline in the employment ratio in Poland should be regarded as a positive development. In the period 1998-2003 the value of the said indicator decreased - for the population aged 15-64 - from 58.9% to 51.2%, to subsequently (2004-2014) increase - from 51.7% to 61.7%. However, the employment ratio remains lower than the EU-28 average (64.9% in 2014.), even though the distance in this respect has significantly narrowed in recent years (from 10.8 percentage points in 2002 to 3.2 p.p. in 2014). At the same time the employment of women, young workers and of the elderly remains a significant problem. While the increase in employment rate is a positive trend it is necessary to stimulate its further growth towards the level comparable not only to the EU average but also to that observed in more developed EU economies.

The problems associated with changes in the demographic structure of the Polish society are becoming increasingly pronounced. It should be emphasized that the countries that have fallen into the middle-income trap faced the problem of dissipating demographic dividend, of which Poland is currently the beneficiary (with the baby boomers born in the 1980s having recently entered the labor market).

However available analyses indicate that if the current demographic trends continue the ratio of people aged 15-64 to the segment of the population aged over 64 will fall from 5.3 in 2011 to 3.7 in 2020, and further to 2.8 in 2030. This trend could lead to a significant slowdown in economic growth in Poland in the coming decades, and thus poses a threat of the economy's remaining in the middle-income trap. Unless there is a reversal of adverse demographic trends even the necessary productivity gains and increases in innovativeness of the economy could not suffice to achieve rapid GDP growth.

Another factor which determines the possibilities of economic development, and hence increases the probability of the country's falling into the middle-income trap or remaining it it is the quality of the regulatory and institutional conditions under which an economy functions. The literature emphasizes, among others, the existence of inverse relationship between the size of the barriers for market entry in a given sector and the value of capital accumulation and its dynamics. Burdensome tax solutions, corruption or institutional conditions disadvantageous for investment activity have an adverse impact on the pace of capital accumulation, as well as on technological and organizational progress and as such hinder economic growth. Studies indicate that higher degree of both regulation of goods and services markets and employment protection translate into lower employment rates in the country (Ciesielska-Maciągowska D., Radło M.J., (2014)).

The latest available comparative research on the level of market regulation in Poland (compared to other OECD countries) is available for 2013. The conclusions formed upon the said data should alert policymakers. The most general measure of over-regulation of the economy is the product market regulation. Even though the respective value for Poland declined in the period 1998-2013 almost 2-fold (from 3.19 to 1.65) attesting to the degree of regulation of these markets being much lower than 15 years earlier, it placed the country on 7th position among the most overregulated economies subject to analysis (improvement of two places compared to 2008.).

It should be also underlined that the model of development based on low and medium technologies as a foundation of productive activities led initially to the acceleration of economic growth, but with the increase in GDP and growth of wages such activities have become less profitable while the economy hadn't developed in the meantime new competitive advantages based on knowledge and innovation.

Another important factor from the perspective of the country's ability to overcome the middle-income trap is the nature of its competitive advantage in international trade, with the specialization in the production and sale of less technologically advanced goods being regarded as a serious problem. At the same time ability of the economy to develop more innovative and modern technologies allows to cope more effectively with the middle-income trap. In this respect the important role is played, by i.a. the educational attainment of the population (the higher the share of people with higher education and the lower the share of less educated people in the working age population the higher the chances of avoiding or overcoming the said trap).

Despite the changes in the structure of the Polish exports, towards higher share of medium-high technology industries and the decline in the share of low technology industries, over half of the value of Polish exports comes from the sale of low and medium-tech goods, as well as from exports of goods produced by industries based on employing semi-skilled manual labor and industries based on employing low-skilled workers.

The probability of a given economy's being subjected to the middle-income trap increases if the economy is characterized by relatively low share of high-technology goods and high share of low-processed goods in its exports. In case of Poland the share of low and medium-low technology branches in the value added generated in manufacturing is higher than not only in more developed EU economies, but also than in Hungary or the Czech Republic. Moreover, the competitiveness of the Polish economy is still largely based on the relatively low labor costs, with such advantage being not only non-durable, but also steadily decreasing. At the same time, however, economic activity is slowly shifting towards more technologically advanced sectors – however the latter process in not a very dynamic one.

The results of competitiveness rankings published by various international institutions, in which the Polish economy lags behind global leaders should also serve as a warning signal For example, World Economic Forum's assigned Poland 41rd place in its 2015-16 Global Competitiveness Index. These results are, unfortunately, confirmed by other reports assessing various aspects of the competitiveness of countries - such as Innovation Union Scoreboard 2015 (with Poland occupying 25th last place in the EU).

In 2014 research and development expenditures amounted to 0,94% of the GDP , as against the 2.08% average in the EU-28. Polish economy is also characterized by a very low number of patent applications per million inhabitants (102.3 in 2014), attesting to the low innovativeness and to the obstacles that occur in the patenting process. Moreover, most of the R&D expenditures are borne by the budgetary sector, which makes their structure significantly divergent from that of the EU-28, where the private sector dominates the R&D efforts.

There is however, a positive trend observed in international competitiveness of the Polish economy - namely the tendency towards external expansion of Polish companies in the form of foreign direct investment. It is being confirmed by the increase in Poland's receivables from foreign direct investment - from EUR 1,390 million in 2000 to EUR 43,492 million in 2012. This indicates that numerous Polish companies are not only able to increase their exports, but are capable of entering foreign markets and operating there with successes. It should be also underlined that sizeable part of the capital flows of Polish companies abroad takes place via countries with favorable tax regulations and regulations favorable to the creation of holding structures. This indicates that it is necessary to introduce regulatory changes at home which would help Polish companies, to establish international holding structures with headquarters located in the home country to a much higher degree than to date.

CONCLUSIONS

To sum up, the observations presented above, it is worthwhile to underline that the vulnerability of the Polish economy to becoming engulfed in the middle-income trap for a long period is correlated with both low levels of its innovativeness and low quality of the institutional and regulatory sphere. Another factor which contributes to such vulnerability is deteriorating demographic structure. Unfortunately, both groups of factors will exert increasingly negative influence on the development of the Polish economy leading to slowdown in total factor productivity (TFP) growth and consequently to declining GDP growth rates. The current state of the economy indicates that it possesses many features than render it vulnerable to the protracted impact of the middle-income trap, while the unsatisfactory pace of structural and regulatory changes is not conducive to elimination of these negative features in the near future. On the other hand certain degree of optimism can be derived from the fact that strategic documents pertaining to the development of Poland in the mid term-perspective (Responsible Development Plan) speak openly of the middle-income trap and aim at overcoming it.

The experience accumulated in the course of the implementation of the EU financial perspective of 2007-2013 shows that sustainable development of the Polish economy is dependent, in a certain degree, on proper earmarking of the European funds. These financial resources should not finance current needs, but must be invested instead in the areas which provide opportunities for sustainable and smart growth creating potential for future profits. The Partnership Agreement (2014-2020) and the operational programs, together with other implementation documents, delineate the way of achieving these goals. However, the EU funds – despite their profoundly positive impact on the Polish economy, are not sufficient to meet the economy's financing needs over the mid-term horizon, and will have only supplementary role in financing the national investment effort, with the main thrust of these efforts being based on effective mobilization of domestic financial resources. The Responsible Development Plan focuses i.a. on reconstructing in Poland modern national large and medium industry based on the application of the latest technologies with the objective of creating technologically modern products which will determine the position of the state in the global economy.

The fact that these premises are reflected in the Responsible Development Plan adopted by the government in February of 2016 constitutes reasons for optimism, provided that the plan's objectives are achieved and by 2020:

– investment rate increases to over 25% of the GDP (compared to about 18% in recent years),
– the ratio of R&D expenditures to GDP climbs to 2%
– Polish foreign direct investment abroad is by 70% higher than currently;
– industrial production grows at the higher rate than the GDP,
– and the GDP per capita level reaches 79% of the EU average (Ministry of Development, Responsible Development Plan).

In our opinion these objectives are broadly congruent with increasing Poland's chances of overcoming the middle-income trap, but will be difficult to achieve, taking into account the both the magnitude of required effort and difficult international economic and political environment. In this context it is worth noting, however, that the country has ample pool of technical engineers and inventors, which offers an enormous opportunity for development. Despite having at its disposal significant intellectual capital capable of unleashing a more dynamic development processes, these resource have not been used to avoid the middle-income trap.

In order to achieve radical breakthrough in innovation and industrial revival radical improvements should take place in living conditions and wages of low and average-income earners. Improvement in the material conditions of the latter group of people, the reconstruction of the national large and medium-sized industry, as well as expansion of the share of national capital in the trade and banking should constitute solid foundations for overcoming the middle income trap.

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