

POLAND AND TURKEY AS THE SUCCESSFUL CATCHING-UP COUNTRIES AND THEIR BILATERAL TRADE IN 2000–2015

BOGUMIŁA MUCHA-LESZKO - TOMASZ BIAŁOWAŚ

Maria Curie-Skłodowska University

ABSTRACT

The subject of the paper is comparative macroeconomic analysis of GDP growth and stability in the economies of Poland and Turkey in 2000–2015 as well as their bilateral trade. Authors focus on the process of catching up and evaluate effects of economic convergence of Poland and Turkey to average macroeconomic indicators for EU-28 and in particular two reference countries – Germany and Spain. Results of the analysis confirm the thesis well acknowledged in economic literature that regional economic integration enables speeding-up of the process of convergence with more developed countries. Poland and Turkey are successful catching-up countries. The assumption that the source of their economic success lies in systemic reforms and integration with the EU (Poland's membership and Turkish customs agreement) was confirmed. An important conclusion of this part of the analysis is pointing out the role of domestic demand in maintaining economic growth of both Poland and Turkey in 2008–2015.

Keywords: Turkey, Poland, catching up success, main factors of convergence, European integration impact, bilateral trade

YAKALAMADA BAŞARILI OLAN İKİ ÜLKE OLARAK POLONYA VE TÜRKİYE' VE 2000-2015 DÖNEMİNDE KARŞILIKLI TİCARETLERİ

ÖZ

Makalenin konusu, Polonya ve Türkiye'nin karşılıklı ikili ticaretlerini de kapsayacak şekilde GSYİH büyümesinin ve istikrarının 2000-2015 yılları arasındaki karşılaştırmalı bir makroekonomik analizidir. Yazarlar, Polonya ve Türkiye'nin ekonomik performanslarını AB-28 makroekonomik göstergelerini, özellikle de Almanya ve İspanya gibi iki referans ülkeyi dikkate alarak yakalama sürecine odaklanmakta ve değerlendirmektedirler. Analiz sonuçları, ekonomik literatürde iyi bilinen, bölgesel ekonomik entegrasyonun daha gelişmiş ülkelerle yakınsama sürecinin hızlandırılmasını sağladığını teyit etmektedir. Polonya ve Türkiye yakalama konusunda başarılı olmuş ülkelerdir. Ekonomik başarılarının kaynağının sistemik reformlara ve AB ile entegrasyona (Polonya'nın üyeliği ve Türk gümrük anlaşması) bağlı olduğu varsayımı doğrulandı. Analizin bu bölümünün önemli bir sonucu, gerek Polonya gerekse Türkiye'nin ekonomik büyümesinin sürdürülmesinde 2008-2015 döneminde iç talebin önemli rol oynadığına işaret ediyor.

Anahtar Kelimeler: Türkiye, Polonya, başarıyı yakalamak, yakınsamanın temel faktörleri, Avrupa entegrasyonu etkisi, ikili ticaret

Poland and Turkey can both be considered members of the emerging economies group that managed to diminish their development gap towards EU-15 significantly through dynamic economic growth. Due to achieved progress and impact of systemic reforms, EU integration, and integration with global markets on structural changes in both economies, Poland and Turkey are great examples of seizing their chances in the catching up process. In each case the process was spread differently over time. In Turkey it started in 1980s and in Poland in 1990s but it was more dynamic. Nevertheless the main factor contributing to structural changes and economic convergence from emerging economies to advanced economies was institutional and real integration with the European Union. For Turkey the turning point was creation of customs union with the EU in 1995 which coincided with completion of the GATT Uruguay Round and foundation of the World Trade Organization as well as ever growing globalization of markets and economic activity. Customs union contributed not only to an increase in trade and investment flows but also allowed Turkish companies to join European production networks (especially in automobiles and clothing production) (World Bank 2014: 1). Institutional base for trade relations was strengthened as a result of Turkish law harmonization with a wide range of EU legislation in order to eliminate technical barriers to trade.

The process of building market economies in Central and Eastern European countries began in 1989–91 with the fall of the bloc of nations functioning under Soviet Union hegemonic control. Disintegration of the economies of former Council for Mutual Economic Assistance limited their resources and development capabilities. Therefore reorientation of economic ties and formal integration with the European Union were the main priorities of Poland's economic policy as well as other CEECs. Poland's economic advancement chances were limited before the transformation compared to Western European economies and resulted in preserving of the development gap. The largest losses in terms of development occurred in 1980s when its average GDP growth rate was -0,4% while in Spain it was 2,5% and in Ireland 2,7% (Bukowski et al. 2006: 15). First years of systemic transformation and the realisation of Balcerowicz Plan since 1990 were a sort of shock therapy and included: economic liberalization, reform of the banking and tax systems, development of the capital market, stabilizing Polish zloty and privatization of state owned national wealth. The costs of those reforms were steep: a decrease in production, growing unemployment rates, falling

real wages, decreasing demand. Cumulative losses in GDP in the first 3 years of transformation were estimated at 13% in Poland and Czechoslovakia, 25% in Bulgaria and 30–40% in Romania and the Baltic states (Roaf et al. 2014: 11–13). The public finance state also worsened due to diminishing tax revenues.

First signs of economic stabilization in Poland appeared in 1992, but productive capacity of the economy remained underutilized. P. Białowolski's calculations point to a negative deviation of real product compared to the potential product in 1992–1994 which gradually fell from 4% through 2% to reach 0 (Białowolski 2005: 46). Production capacity utilisation had been improving since January 1995 and the real product surpassed the potential by October 1998 ranging between 1–2% (Białowolski 2005: 46). Polish economy's ability to grow was a result of investment activity. However, by the end of 1990s condition of the economy clearly declined. The slump was caused by two main factors: a slowdown in reforms strengthening the market mechanism, competition and competitiveness, as well as crisis in Russia in 1998. Another demand shock was a consequence of worldwide recession that began in 2001 in the United States and Europe and lasted nearly 3 years. The real GDP in Poland fell below the potential level in January 1999 and the low growth rates continued until mid-2003. Significant increase in Polish GDP rate occurred in 2003 and was associated with assuming EU membership in 2004.

Growth of Poland's interdependence within the common EU market includes economic relations with Turkey connected with set market by a customs union agreement. In 2014 Poland and Turkey celebrated the 600th anniversary of establishing mutual diplomatic relations. It was an opportunity for many discussions and meetings of the highest authorities of the two countries and for new initiatives to intensify bilateral economic cooperation. This paper offers some contribution to the discussion foregoing in Poland, which emphasizes Turkey's role as a major economic and particularly trading partner in the region of Middle East and Asia. New opportunities for developing Poland's economic relations with Turkey opened with political and economic changes (since the 1990s in Poland) and the Polish accession to the European Union.

The aims of this study are:

- the comparative analysis of economic growth and macroeconomic stability in Poland and Turkey including assessment of the convergence process in 2000–2015 as well as resistance to economic shocks during crisis of 2008–2009. The reference countries are Germany and Spain;
- the assessment of achievements in the development of trade between the two countries;
- the deeper analysis of the mutual trade in goods including: trade dynamics, structural changes, factors of competitive advantage, and development prospects as well as barriers.

The mutual trade flows are assessed from bilateral as well as European point of view. The analysis covers the years 2000–2015 with some historical references.

The main outcomes of the analysis are:

- the identification of major drivers of high economic growth in Poland and Turkey in the last two decades;
- the assessment of the resilience of both economies to the 2008–2009 crisis;
- the identification of prospective areas for Polish and Turkish economic relations;
- the assessment of opportunities for development of Polish exports to Turkey adjusted to the Turkish domestic demand.

Macroeconomic analysis – convergence and identification of the main factors contributing to high economic growth in Poland and Turkey in 2000–2015

Theoretical framework

Modern theories of economic growth and empirical analysis are a valuable knowledge sources on varying levels of economic development and per capita income. Neoclassical economists claim that the most important explanation lies within factors of production and their declining productivity. A meaningful supplement to this concept was including investment in physical as well as human capital - while the neoclassical approach was limited to physical capital (Ben-David, Loewy 2003; Lucas Jr 1988: 39; Siwiński 2005:

734). This increased the utility of theories in analyzing economic growth. P. Romer (1990), G. Grossman and E. Helpman (1991) focused on factor productivity stemming from knowledge (human capital) and R&D activity contributing to technological improvement and growth of factor productivity. Further interpretation of technology's impact on economic growth comes out from including international spillovers of knowledge and technological progress. Obtaining knowledge by itself does not guarantee production efficiency growth, but costs of adaptation and use of technology is lower since it is not necessary to bear the R&D cost as well (Mucha-Leszko 2014: 18).

A breakthrough in research on economic convergence process was brought by work of R. Barro, X. Sala-i-Martin (1990, 1991, 1992) published in early 1990s. It initiated introduction of new research methods (models) and concepts on assessing convergence. The main focus of the researchers was beta and sigma convergence. The first kind (beta convergence) can be defined as ability of less developed economies (with lower GDP per capita) to grow faster than the more developed ones. The growth rates determine the dynamics of closing the development gap to the high-income countries (catching-up process). Sigma convergence is a result of beta convergence and refers to a reduction in the dispersion of levels of per capita GDP across economies measured by standard deviation. X. Sala-i-Martin (1996) proposed a hypothesis that sigma convergence occurs also across smaller territorial units such as regions, but it is more difficult to assess especially in a short-term perspective. Empirical analysis carried out during the last two decades that aimed to verify beta convergence and its rate clearly confirm this phenomenon regardless of the number of countries in the study or its timeframe. However, results pertaining to the rate of convergence are varied.¹

Closing the development gap depends on the force of factors affecting economic growth – increase in labour input and labour productivity. Growth in labour productivity is a result of capital input and Total Factor Productivity (TFP). EU membership created new chances for stimulating economic growth due to the free movement of goods, services and production factors – capital and technology in particular, economies of scale arising from the creation of large internal market, speeding up convergence as a result of

1 Results of over 50 research products of selected authors from 1992–2008 including analysis of beta convergence in various country groups compiled by M. Próchniak and B. Witkowski (2012: 48–51).

fiscal transfers and financial aid to countries and regions through Structural Funds. Potential ability to reach and maintain high economic growth rate is contingent mainly on country's economic policy. Those are crucial for shaping more favourable or less favourable conditions for the utilization of foreign capital and technology for stimulating the economy, creating new demand and structural changes.

Empirical analysis

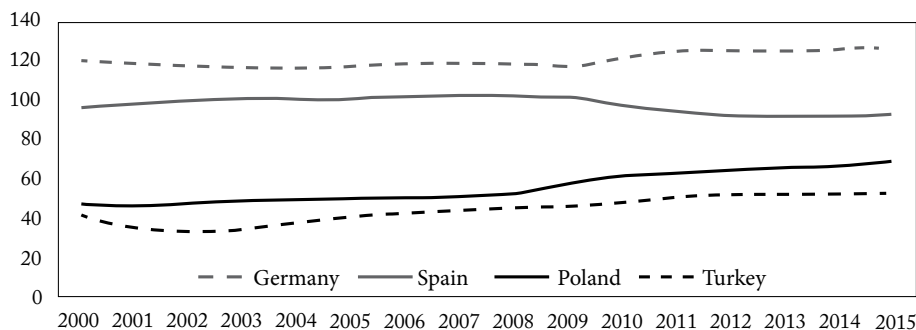
Table 1 and Figure 1 reflect effects of Poland and Turkey's economic convergence with Germany and Spain in 2000–2015. The baseline for the analysis is average GDP per capita (EU-28=100). It is clear that Poland was closing the gap fastest. The dispersion of GDP per capita to Germany lowered from 72 p.p. to 56 p.p. and to Spain – from 49 p.p. to 26 p.p. Turkey also managed to converge towards both reference countries. Nevertheless, Turkish GDP per capita remains significantly lower than Spanish or German. In 2000 it was lower than German GDP per capita by 78 p.p. and in 2015 – by 72 p.p. The results of Turkish convergence with Spain are more favourable. The dispersion of GDP per capita was 55 p.p. in 2000 and fell to 39 p.p. in 2014. Significant growth of convergence with Spain of both Poland and Turkey is a result of the process of divergence of Spanish economy since 2008 (tab. 1).

Table 1: Real GDP per capita in PPS (EU-28=100) in Poland, Turkey, Germany and Spain

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Germany	119	118	116	117	117	117	117	117	118	116	121	124	124	124	126	125
Spain	96	98	100	100	100	100	102	103	101	101	97	94	92	91	91	92
Poland	47	46	47	48	49	50	50	53	54	59	62	64	66	67	68	69
Turkey	41	36	35	35	39	41	43	44	46	45	48	51	53	53	53	53

Source: Eurostat (2016).

Figure 1: Real GDP per capita in PPS (EU-28=100) in Poland, Turkey, Germany and Spain



Source: Data in table 1.

In the analysed period Turkey's gap towards Poland grew, as in 2000 GDP per capita in Poland was higher than in Turkey by 6 p.p. and in 2015 the dispersion enlarged to 15 p.p. Turkish economy turned out to be more cyclically-sensitive than Polish and as a result a fall in GDP in 2001 in Turkey was 5,7%. In 2008 Turkish economy grew only by 0,7% and in 2009 negative GDP rate was 4,8% (tab. 2).

Table 2: Gross domestic product, constant prices (percent change) in Poland, Turkey, Germany and Spain, 2000–2015

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Poland	4,3	1,2	1,4	3,6	5,1	3,5	6,2	7,2	3,9	2,6	3,7	5,0	1,6	1,3	3,3	3,6
Turkey	6,8	-5,7	6,2	5,3	9,4	8,4	6,9	4,7	0,7	-4,8	9,2	8,8	2,1	4,2	2,9	3,8
Germany	3,2	1,8	0,0	-0,7	0,7	0,9	3,9	3,4	0,8	-5,6	3,9	3,7	0,6	0,4	1,6	1,5
Spain	5,1	4,0	2,9	3,2	3,2	3,7	4,2	3,8	1,1	-3,6	0,0	-1,0	-2,6	-1,7	1,4	3,2

Source: IMF (2016).

The main drivers of convergence were the following: increased economic activity, growth of employment, improvement of labour productivity and structural changes that contributed to the movement of workers

towards more productive sectors and enterprises. Structural changes varied in Poland and Turkey. In Poland there was a flow of workers from closed state-owned enterprises to newly created private-owned enterprises in manufacturing as well as newly developing service sector. The movement was from less productive towards more productive enterprises. According to research carried out in European Bank for Reconstruction and Development the high rate of Total Factor Productivity (TFP) growth in Poland, as well as other transition economies of Central and Eastern Europe was a result of transfer of human resources to more productive enterprises (Raiser et al. 2016). In Turkey, on the other hand, the main factor of TFP growth was movement of labour force from agricultural sector to manufacturing and services. Agriculture remains an important part of Turkish economy and share of employed in the primary sector in total labour force is significant. It is crucial to point out that intensive industrialization was the main component contributing to the growth of labour productivity and GDP growth. Comparability between Poland and Turkey's economies stems from their structural characteristics. Share of employment in manufacturing sector in Turkey and Poland is around 20%.

To better evaluate economic results, sources of GDP growth and macro-economic balance of Poland and Turkey compared to Spain and Germany in 2000–2015 we expanded our empirical analysis and included GDP growth factors, unemployment rates and central budget balance as well as current account balance. Considering the varied consequences of financial and economic crisis in 2008–2009 throughout the European Union, the analysis includes two separate periods of 2000–2007 and 2008–2015. The average annual indicators for the two periods are provided in Table 3.

Data in table 3 reveals that average annual real GDP growth rate was highest in Poland and Turkey in both periods. The advantage of Turkey in this respect was bigger in 2000–2007 while in the period of recession in 2008–2015 it dropped to 0,3 p.p. Until the crisis the average GDP growth in Spain was also quite high, close to Poland's result of 4%. German economy, on the other hand, experienced lower growth rates which were caused by too restrictive monetary policy of European Central Bank after the introduction of euro when it had to be adjusted to the average euro area inflation rate.

Table 3: Main macroeconomic indicators for Poland, Turkey, Germany and Spain, 2000–2015

	<i>2000–2007</i>	<i>2008–2015</i>
	<i>Gross domestic product, constant prices (percent change)</i>	
Poland	4,1	3,1
Turkey	5,2	3,4
Germany	1,6	0,9
Spain	3,7	-0,4
	<i>Growth of labor productivity per hour worked (percent change)</i>	
Poland	3,8	2,7
Turkey	4,8	0,7
Germany	1,7	0,5
Spain	0,4	1,4
	<i>Growth of labor productivity per person employed (percent change)</i>	
Poland	3,8	2,5
Turkey	4,7	0,1
Germany	1,2	0,1
Spain	0,1	1,4
	<i>Growth of Total Factor Productivity (estimated as a Tornqvist index)</i>	
Poland	2,0	0,3
Turkey	0,3	-2,0
Germany	1,0	-0,2
Spain	-0,8	-0,6
	<i>Employment growth (percent change)</i>	
Poland	0,4	0,7
Turkey	0,5	3,2
Germany	0,4	0,8
Spain	3,7	-1,7
	<i>Unemployment rate (percent of total labor force)</i>	
Poland	16,8	8,9
Turkey	8,5	10,1

Germany	9,3	6,0
Spain	10,5	21,0
	<i>Inflation, average consumer prices (percent change)</i>	
Poland	3,4	2,3
Turkey	26,9	8,1
Germany	1,7	1,4
Spain	3,3	1,5
	<i>General government net lending/borrowing (percent of GDP)</i>	
Poland	-4,2	-4,7
Turkey	-6,6	-2,2
Germany	-2,3	-0,8
Spain	0,4	-7,8
	<i>Current account balance (percent of GDP)</i>	
Poland	-4,1	-3,6
Turkey	-3,0	-5,8
Germany	2,8	6,6
Spain	-6,0	-2,1

Sources: own calculation based on: Gross domestic product, gross domestic product per capita, unemployment rate, inflation, general government net lending/borrowing and current account balance: IMF(2016); Growth of labor productivity, growth of Total Factor Productivity and employment growth: The Conference Board (2016).

During the second of the analysed periods (2008–2015) there were two waves of recession and recovery is weak in most EU countries. Still Poland and Turkey maintain relatively high growth rates, and in case of Spain and Germany the previous tendencies were reversed. Spain suffered from negative growth rates and in Germany there was a slight slowdown but the average GDP growth was 0,9%.

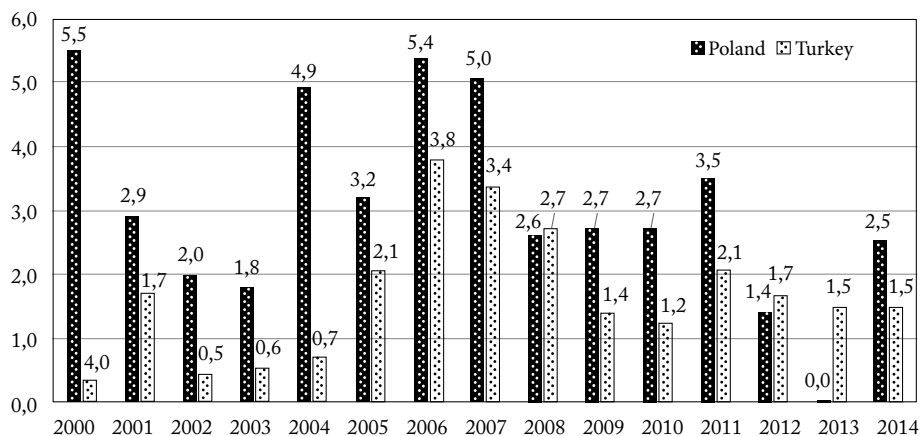
Dynamics of the economy is contingent on input of labour productivity and employment to GDP growth as well as impact of Total Factor Productivity on labour productivity. In 2000–2007 the highest growth in labour productivity was in Poland and Turkey, but also relatively high (for a deve-

loped country) in Germany. This was not the case of Spain – the high GDP growth was caused by growing employment in low productive sectors such as production of construction materials and housing.

In analysed countries during 2008–2015 there was a large differentiation of labour productivity and employment input to GDP growth. Labour productivity rates fell significantly in Turkey and Germany, but Turkey maintained economic growth due to increasing employment, in particular in 2010–2011 (6,2%, 6,7%). Employment also grew in Germany – in relation to 2000–2007, in 2011–2012 employment growth rates were respectively 1,4% and 1,2% (The Conference Board 2016). Only in Poland labour productivity remained as main growth factor. Apparent improvement of average annual labour productivity growth occurred in Spain – from 0,1% to 1,4% (tab. 3). However it was not a result of real growth of GDP per person employed or per hour worked, but due to collapse of enterprises especially in construction sector, reduction of employment, improvement of capital-labour ratio and elimination of the least productive market players. TFP which reflects role of technological progress in the GDP growth was highest in Poland in both periods. In Germany it declined in 2008–2015 reaching negative levels, in Turkey it fell considerably – from 0,3% to -2,0% (tab. 3), and in Spain TFP was declining in both periods.

Foreign Direct Investment (FDI) is one of the crucial factors impacting the pace convergence process and in particular process of closing the technology gap and structural changes in emerging markets. Presented data proves that FDI had more impact on stimulating economic activity and productivity in Poland. In Turkey in 2000–2004 FDI amounted to just a small percentage of GDP (below 1%). Their role started growing in 2005 and in 2008 share of FDI inflow in Turkish GDP surpassed the same indicator for Poland. However, during the worldwide crisis and post-crisis economic slowdown, especially in Europe in 2009–2014, FDI in Turkey remained on a low but stable level of around 2,1%–1,2% of GDP. In Poland the fluctuations of GDP inflow were much wider – from 3,5% of GDP in 2011 to almost zero in 2013. Nevertheless, their impact on the economy was much greater compared with Turkey (figure 2).

Figure 2: Foreign direct investment in Poland and Turkey in 2000–2014
(inward, % of GDP)



Source: UNCTAD (2016).

Labour market situation during the crisis improved considerably in Poland, significantly in Germany (due to labour market policy), slightly deteriorated in Turkey and in Spain unemployment rate in 2011 surpassed 21%, in 2013 peaked at 26,1% and afterwards started falling (to 22,1% in 2015) (IMF 2016). High inflation rate remained the weakness of the Turkish economy, but in 2008–2015 it was much lower than in 2000–2007 – it fell from 26,9% to 8,1%. Still, compared to Poland, inflation rates are quite high and contribute to diminishing export competitiveness. In terms of central government balance in 2000–2007 Poland and Turkey were no match for Germany or Spain, but the crisis changed the situation. Average budget balance in 2008–2015 deteriorated in Poland, but mostly in Spain which had a surplus before, but in 2008–2015 an average deficit of 7,8% of GDP. Turkey and Germany had lowest rates of government deficit (2,2% and 0,8% of GDP respectively). Good central budget balance can be considered an asset of Turkish economy. On the other hand, a serious disadvantage can be pointed out in terms of current account balance. The longstanding deficit deepened in 2008–2015. Poland’s deficit is not that high and in 2013–2015 it was on a decreasing trend – between -2,0% and -0,5% of GDP (IMF 2016).

The carried out analysis of Poland and Turkey’s economic indicators concludes that both countries considerably reduced their development gap within the last 15 years. Economic progress is quite clear in comparison

to highly developed EU economies such as Germany or Spain. It is worth pointing out that Poland and Turkey remained on an upward GDP growth trend during the crisis and post-crisis recession. The power source for economic activity came from domestic demand. In Poland all the elements of domestic demand contributed to economic growth: investment, private and government consumption. In Turkey the most important contribution to GDP resulted from private consumption growing due to increasing of employment and wages as well as favourable credit policy.

Growth forecasts for 2016–2017 are optimistic and similar to Poland (3,4%–3,5%) and Turkey (3,9%–3,7%), but in Poland the discrepancy between forecasted and potential GDP is much smaller (OECD 2016a: 19; OECD 2016b: 16).² According to OECD, to maintain economic growth Turkey needs to eliminate barriers. Creating low productive jobs won't result in sustainable economic growth or comparative advantage in trade. Main barriers limiting Turkish growth are: 1) low labour productivity and slow its growth rate, low R&D expenses and insufficient interest of foreign investors of choosing Turkey as their destination, 2) low exports competitiveness stemming from low labour productivity, low innovativeness and lack of export specialization in high-tech product sector as well as low price competitiveness caused by high inflation rate, 3) insufficient savings as a consequence of growing propensity to consume, 4) too many small, low productive enterprises limiting overall productivity of the economy.

In case of Poland main conditions allowing to remain on an upward growth and convergence trend are: 1) growth of private investment, 2) transfer of resources towards higher technology production, 3) enhancement of workers' qualifications, 5) change from temporary contracts employment, which is less conducive to labour productivity growth.

European integration as the driving force of mutual trade and participation in the global value chains

Relatively high growth of GDP and labour productivity in Poland and Turkey, and in case of Poland also of Total Factor Productivity in 2000–2015, had been reflected in the increased export potential of both countries. Average growth of world exports volume in 2000–2007 was 6,4%, while in

2 But last IMF's forecasts for 2016–2021 are lower: 3,13%, 3,37%, 3,32%, 3,08%, 2,98% and 2,98% for Poland; 3,28%, 2,98%, 3,22%, 3,32%, 3,46% and 3,51% for Turkey.

Poland average growth of exports volume was 15,3% and in Turkey – 14%. This is much higher than Germany (6,6%) or Spain (5,3%) (tab. 4). Worldwide financial and economic crisis of 2008–2009 resulted in a slowdown of trade. Growth rate of world exports volume fell to an average of 2,5% in 2008–2015. Dynamics of Polish and Turkish exports also declined in comparison to 2000–2007, but it remained higher than in Spain or Germany.

Table 4: Growth of exports volume in 2000–2015 in %

	<i>2000–2007</i>	<i>2008–2015</i>
World	6,4	2,5
Germany	6,6	2,1
Poland	15,3	5,7
Spain	5,3	2,9
Turkey	14,0	4,3

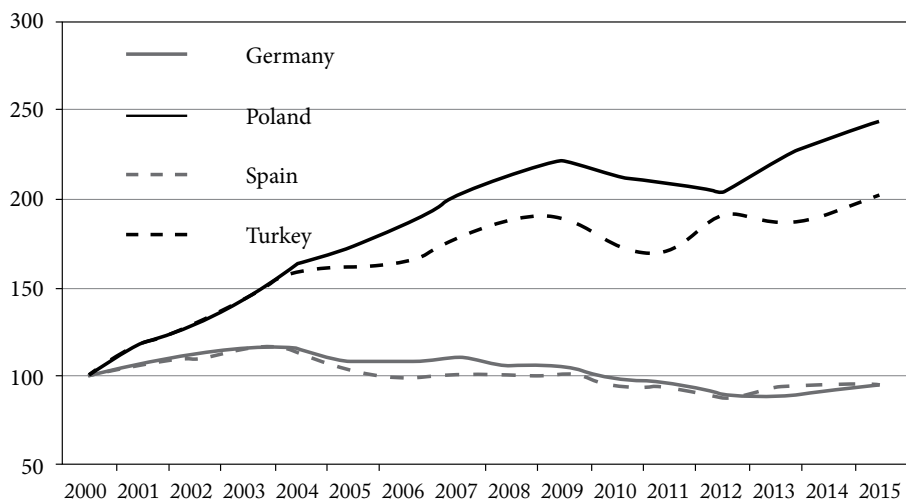
Source: WTO (2016).

Higher exports growth in Poland and Turkey contributed to improving their position in world trade. Share of Poland in world merchandise exports in 2000–2015 grew from 0,49% to 1,2%, and in case of Turkey – from 0,43% to 0,87%. While Germany’s share fell from 8,53% to 8,03%, and Spain’s – from 1,78% to 1,70% (tab. 5, figure 3).

Table 5: World export market shares

	<i>2000</i>	<i>2008</i>	<i>2015</i>
Germany	8,53	8,96	8,03
Poland	0,49	1,06	1,20
Spain	1,78	1,74	1,70
Turkey	0,43	0,82	0,87

Source: UNCTAD (2016).

Figure 3: World export market shares (2000=100)

Source: UNCTAD (2016).

Remarkably high intensity of trade between Poland and Turkey began in 2004 when Poland joined the EU. Analysis of Polish – Turkish trade relations in 2000–2015 reveals a number of trends. Firstly, value of bilateral trade grew much faster than overall Polish exports. Total exports grew over six-fold and exports to Turkey – over twenty four times (tab. 6, figure 4). A particularly high growth rate occurred in 2004–2008 and 2010–2011. Since 2012 Polish exports to Turkey was on a downward trend – except 2014.

Table 6: Value and growth rate of Poland's trade with Turkey in 1995–2015 (thousand of USD and %)

	<i>Value</i>			<i>Growth rates (%)</i>	
	<i>Exports</i>	<i>Imports</i>	<i>Trade balance</i>	<i>Exports</i>	<i>Imports</i>
1995	74422	76119	-1697		
1996	58613	93160	-34547	-21,2	22,4
1997	59702	129961	-70260	1,9	39,5
1998	55292	158777	-103485	-7,4	22,2

1999	84516	193630	-109114	52,9	22,0
2000	128741	203437	-74696	52,3	5,1
2001	133437	385495	-252058	3,6	89,5
2002	249769	613234	-363465	87,2	59,1
2003	351455	855050	-503595	40,7	39,4
2004	901353	1111079	-209725	156,5	29,9
2005	1197210	1314437	-117226	32,8	18,3
2006	1304478	1576014	-271536	9,0	19,9
2007	1508193	2137612	-629419	15,6	35,6
2008	1772063	2519997	-747934	17,5	17,9
2009	1755061	1925811	-170750	-1,0	-23,6
2010	2483137	2119995	363142	41,5	10,1
2011	3291202	2324135	967067	32,5	9,6
2012	3099789	2137691	962098	-5,8	-8,0
2013	3041471	2415907	625564	-1,9	13,0
2014	3129542	2691010	438533	2,9	11,4
2015	3100730	2861407	239323	-0,9	6,3

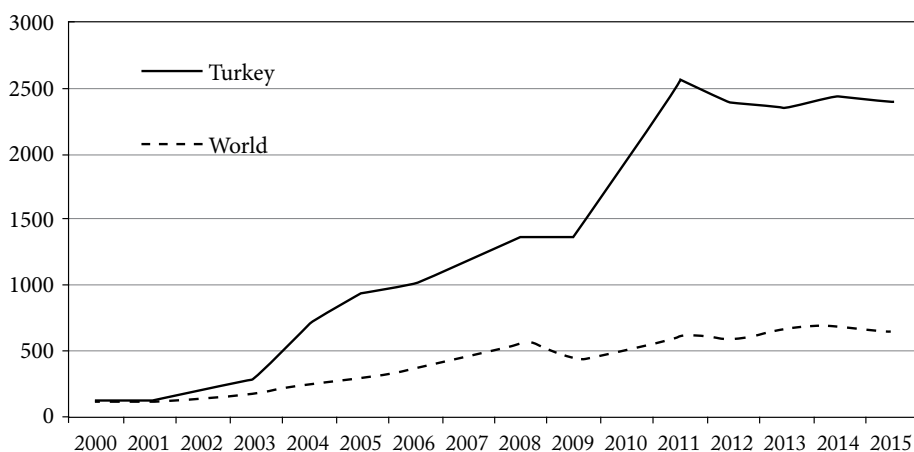
Source: UNCTAD (2016).

Secondly, in 2000–2009 Poland continued to have trade deficit with Turkey. Surplus appeared for the first time in 2010 as a result of high exports growth (2010–2011) and a decline in imports dynamics.

Thirdly, despite growing role of Turkey as Poland's trade partner – its' share remains low. In 2015 Turkey's share in Polish exports was just 1,6% and in imports – 1,5%. Turkish market was important in exports of machinery and transport equipment (2,8% in 2015) and chemicals and related pro-

ducts (1,6%). In Polish imports from Turkey the merchandise groups with higher shares were: miscellaneous manufactured articles (2,4% in 2015), manufactured goods classified chiefly by material (2,0%) and food and live animals (1,8%) (UNCTAD 2016).

Figure 4: Growth of Polish exports and Polish exports to Turkey (2000=100)



Source: UNCTAD (2016).

Fourthly, there has been many changes in the commodity structure of Poland's trade with Turkey in 2000–2015. Share of machinery and transport equipment in Polish exports to Turkey grew by 23,3 p.p. and in imports by 13,1 p.p. Within machinery and transport equipment group there was an increase in the share of telecommunications, sound-recording and reproducing apparatus and equipment (by 14,3 p.p.), power-generating machinery and equipment (by 13,5 p.p.) and road vehicles (by 9,5 p.p.). There was a fall in share of electrical machinery (by 22,5 p.p.) In 2015 main product groups in Polish exports to Turkey were: machinery and transport equipment (69%), manufactured goods classified chiefly by material (13,1%) and chemicals (8,7%). There was a higher share of product with a lesser degree of processing, less technologically advanced and more labour-intensive in Polish imports from Turkey. Still, just like in exports the highest share of imports was held by machinery and transport equipment (41,2%) (see tab. 7).

**Table 7: Poland's trade with Turkey by product groups in 2000–2015
(share of total exports and imports in %)**

<i>Year</i>	<i>Exports</i>		<i>Imports</i>	
	<i>2000</i>	<i>2015</i>	<i>2000</i>	<i>2015</i>
Food and live animals	3,3	3,6	9,8	8,9
Beverages and tobacco	0,6	0,1	4,1	0,5
Crude materials, inedible, except fuels	0,7	0,7	2,3	1,9
Mineral fuels, lubricants and related materials	3,0	0,2	0,0	0,0
Animal and vegetable oils, fats and waxes	0,0	0,0	0,0	0,0
Chemicals and related products, n.e.s.	16,4	8,7	9,7	5,8
Manufactured goods by material	26,9	13,1	33,2	23,3
Machinery and transport equipment	45,6	69,0	28,2	41,2
Miscellaneous manufactured articles	3,2	4,5	12,8	18,4
Commodities and transactions, n.e.s.	0,3	0,1	0,0	0,0
Total all products	100,0	100,0	100,0	100

Source: UNCTAD (2016).

Analysis of structural changes in exports and imports aiming at improving competitiveness and gains from trade requires an increase in the share of technology-intensive products and decrease in material- and labour-intensive products. According to R. Knap's calculations Poland's trade with Turkey is favourable to Poland. Polish exports was dominated by technology-intensive products and imports – by material- and labour-intensive products (tab. 8). The major products in bilateral trade flows are of high degree of processing.

Table 8: The structure of the Polish export to Turkey and Polish import from Turkey divided by the factor intensity of the goods for the years 2000–2014 (in %)

	2000	2003	2006	2009	2012	2013	2014
<i>Export</i>							
Material-intensive	9,7	11,5	3,9	9,6	9,0	4,8	4,3
Labor-intensive	19,5	13,3	10,2	9,3	10,7	11,6	13,1
Capital intensive	24,3	13,0	37,5	26,9	27,3	33,1	32,6
Technology-intensive							
- easy to imitate	5,5	4,6	5,4	20,1	26,3	17,2	18,0
- difficult to imitate	40,7	57,5	42,9	34,0	26,7	33,2	31,8
<i>Import</i>							
Material-intensive	11,7	4,8	10,3	7,8	8,9	9,3	9,4
Labor-intensive	40,3	38,8	35,6	39,8	36,2	35,0	37,0
Capital intensive	31,2	32,5	29,6	23,8	31,4	31,3	29,9
Technology-intensive							
- easy to imitate	10,1	4,9	4,5	9,0	5,9	5,8	4,8
- difficult to imitate	6,7	19,0	19,6	19,1	17,6	18,6	18,8

Source: Knap (2015: 76, 77).

One of key drivers of Poland and Turkey's growing role in the world economy and in particular world trade is participation in global value chains. Integration with European, especially German production networks contributes to an improvement in competitiveness, labour productivity and enables expansion to world and EU markets.

There can be two types of integration with production networks. Backward integration means using foreign input for production of intermediate and final goods that can be exported. This kind of connection is conducive to knowledge and technology transfer through trade as well as FDI. Forward

integration means producing intermediate goods used then in the production of final goods exported by other countries. This type of integration requires improving the quality of products according to global standards and thus expands export capabilities and results in better utilization of production resources.

Basic methodological approach for analysis of international trade based on share of value added in gross exports is an ability to assess domestic input to final product's value. So gross exports is a sum of domestic direct and indirect value added exported to other countries and foreign value added that includes previously imported foreign components, parts and materials used in the production process.

Table 9 contains data on the degree of analysed economies integration with global value chains. Backward participation index is defined as the share of foreign value added in a country's gross exports. Forward participation is defined as the ratio of domestic value added embodied in foreign countries' exports over gross exports. The last available data is for 2011 and in that year Poland had the highest share of foreign value added in gross exports (32,39%). This means that 1/3 of Polish exports was previously imported components, so integration of global chains was a crucial factor of growth in value and dynamics of foreign trade. Share of foreign value added in Turkey was a couple of percentage points lower – closer to Germany and Spain. However, one needs to point out an enormous growth of this indicator – it has doubled over 2000–2011, which was the most impressive result among the analysed economies.

Table 9: Participation in global value chains

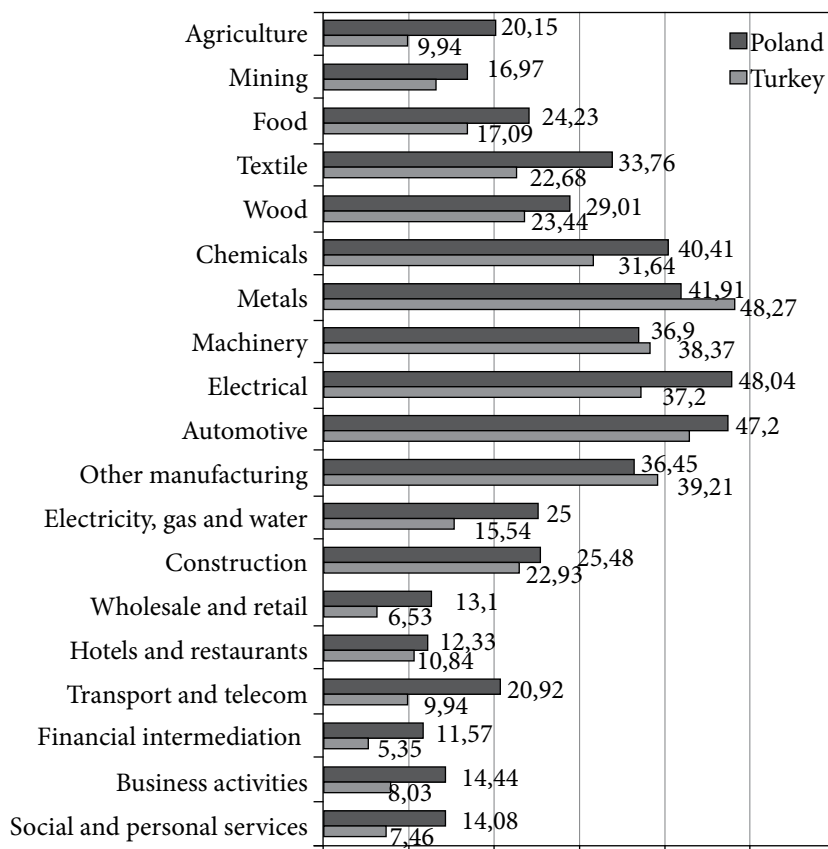
	<i>Backward participation index</i>		<i>Forward participation index</i>	
	<i>2000</i>	<i>2011</i>	<i>2000</i>	<i>2011</i>
Poland	23,95	32,39	20,6	23,3
Turkey	13,06	25,73	14,7	15,3
Germany	20,22	25,54	22,6	24,1
Spain	25,83	26,88	16,0	19,7

Source: OECD-WTO (2016).

Forward participation index is much more important from the point of view of international competitiveness. In 2011 Germany had the highest level of this indicator (24,1%). That means that close to a quarter of their gross exports was used as intermediate input used in exports of other economies. In Poland forward participation index was close to Germany's level (23,3%). Spain and Turkey had the lowest level of forward integration, respectively 19,7% and 15,3%. In other words, the capacity of Turkish firms to play a role in upstream parts of value chains has remained very limited compared to other countries (OECD 2016b: 92).

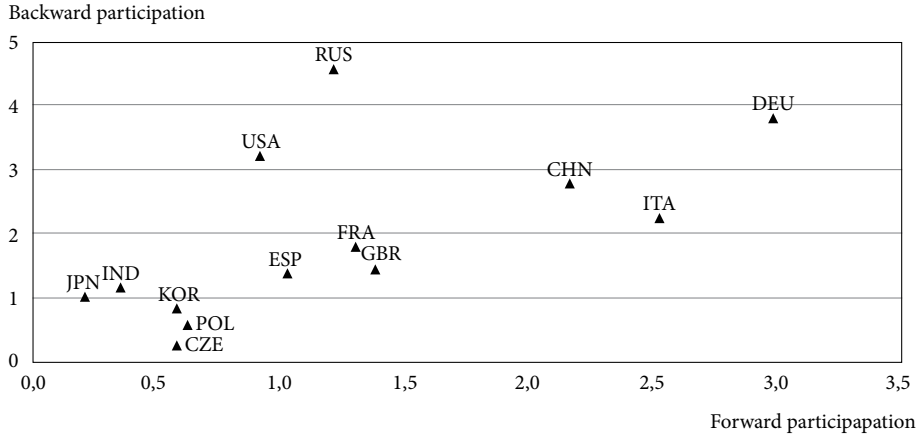
Analysis of foreign value added share in various categories of gross exports allows to point out sectors most integrated with global production networks. In both Turkey and Poland the highest value added share was in exports of the following goods: automotive, electrical, metals, machinery and chemicals. Only in 3 categories of exports (metals, machinery and other manufacturing) Turkey's share of foreign value added in exports was higher than Poland's. In all the remaining categories Poland was much more integrated with European production networks, integration was especially strong in services (figure 5).

Figure 5: Share of foreign value added in gross exports of Poland and Turkey in 2011 (in %)

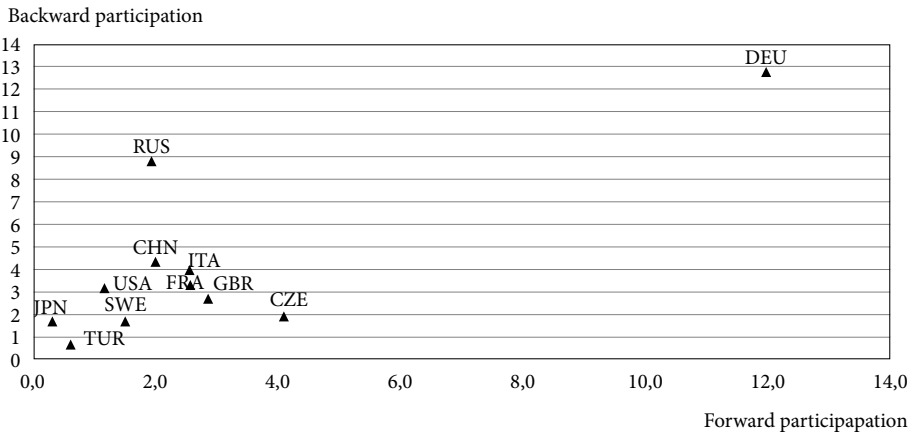


Source: OECD-WTO (2016).

Analysis of Turkish and Polish companies links within global value chains reveals their strong integration with German production networks (figures 6 and 7). In 2011 in Germany's gross exports around 12 billion USD was foreign value added originating in Poland and about 3 billion USD originated in Turkey, this was respectively 1/5 and 1/10 of Poland's and Turkey's forward linkages. In Turkey's gross exports foreign value added originated in Germany amounted to 3,8 billion USD and in Polish export German value added was 12,8 billion USD (OECD 2016b: 96; OECD-WTO 2016).

Figure 6: Turkey's main global value chain partner countries

Source: OECD (2016b: 97).

Figure 7: Poland's main global value chain partner countries

Source: OECD-WTO (2016).

Comparing Poland and Turkey's structure of global chains it becomes apparent that Polish exporters take part mostly in German value chains, so their trade in value added is mainly bilateral (with Germany). The second largest partner for Polish intra-industry trade was Russia. Turkey's trade links are more diversified and global. Value added in Turkish gross exports comes from Russia, Germany, United States, China and Italy. Bilateral Polish-Turkish trade in value added is limited and in 2011 it amounted to 1204

million USD. Only 0,89% of foreign value added in Polish gross exports originated in Turkey and in Turkish value added Poland had a share of 1,31% (OECD-WTO 2016).

When it comes to the perspectives of Poland's trade with Turkey, there can be a number of factors contributing to the further growth in bilateral turnover, such as:

- 1) growth of production links within global value chains and development of intra-industry trade in parts and components;
- 2) improving innovativeness of the Polish economy resulting in structural changes in exports leading to raising its competitiveness on the Turkish market;
- 3) further growth of purchasing power in Turkey and growth in consumer demand for Polish goods and services.

Turkish companies' links within European value added chains developed swiftly in 2000–2011, however there could be much more gains from participation in those networks provided that a couple conditions named by OECD experts are fulfilled (OECD 2016b: 38–39):

- Raise the quality of basic institutions;
- Improve ICT infrastructure, in particular internet-based and software-based business;
- solutions;
- Increase cross-border cooperation and reduce cumbersome custom procedures;
- Deepen trade agreements;
- Reduce entry barriers for foreign capital in the services;
- Improve business conditions to attract more FDI;
- Raise R&D spending;
- Raise the standards of corporate governance and managerial skills.

Polish economy is not one of the innovation leaders, but within most of innovativeness measures there has been a slow and steady improvement. The best figures pertain to the potential for innovation and thus serious

reorientation of the existing model of supporting innovation and development of economic policy more favourable for innovative enterprises could contribute significantly to an improvement of Polish exports' innovativeness (Wojtas 2014: 146–147). This provides an opportunity for an increased share in world exports, and more so in EU exports and through that strengthening Poland's position in Turkish imports from the European Union.

High economic growth and continuous income convergence with EU countries linked with an exceptionally high share of household consumption in Turkey's GDP (66,6% in 2015) allow for an optimistic view of demand level including demand for imported goods (OECD 2016c). However, to improve Poland's share in Turkish imports further adjustment of Polish products is necessary – in terms of price and even more so in terms of quality. Increase in society's wealth can result in a growing demand for commercial services, that can successfully be exported by Polish companies provided that existing administrative and technological barriers are removed.

Conclusion

Analysis of Poland and Turkey's economic indicators in 2000–2015 confirms a hypothesis that both countries, as a result of liberalizing the economies and participating in European integration, achieved high average growth rates in 2000–2007, respectively 4,1% and 5,2%. Despite the financial and economic crisis of 2008–2009, the average GDP growth rate in 2008–2015 remained high (3,1% in Poland and 3,4% in Turkey).

High dynamics of the economies was caused by positive effects of numerous factors such as: 1) strengthening of market mechanism and competition in both countries, 2) increase in FDI and technology inflows, 3) growth in labour productivity, 4) structural changes and reallocation of human resources into more productive sectors of the economy, 5) intensification of European as well as global trade links due to the participation in the EU internal market, 6) development of export specialization and intra-industry trade as well as role of external markets in stimulating economic activity, 7) growth in income and domestic demand.

It is important to emphasize Poland and Turkey's impressive results in closing development gap due to growing domestic demand allowing for a more stable economic growth. In Poland – main factor of GDP growth was increase in labour productivity while in Turkey – increase in employment.

Development outlook for both countries looks good, but depending on growing innovativeness, quality of human resources and competitiveness.

Trade is the base for Polish – Turkish bilateral economic relations. An increase in bilateral turnover started in 1999 with the launch of Poland's EU accession negotiations. Data clearly proves that with the progress of the negotiation since 2002 bilateral turnover has doubled. Another spectacular step in Poland's trade liberalization was EU accession in 2004. An interesting phenomenon is dynamic growth of Poland's exports to Turkey in 2010–2011. There has been a slight drop in the following two years and then a stable flow in 2014–2015. Potential opportunities for developing bilateral trade are considerable. They depend upon maintaining positive economic growth in both countries, increasing role of intra-industry trade, growth in high-tech products' trade and competitive advantage on the EU market, but also to a large extent rely on bilateral dialogue and activity of Polish and Turkish authorities in promoting economic ties on sector as well as company level.

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