

# **Interconnections between the business cycle, migration flows and trade volumes – the case of Polish migration to the UK after 2004.**

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## I. INTRODUCTION

The aim of this paper is to analyze the role of the business cycle on the international labor migration and to examine its influence on trade volumes. The theoretical findings are confronted with the statistics on the Polish migration to the United Kingdom after 2004.

The New Economics of Labor Migration provides numerous theoretical studies on the impact of the economic development of the country on the propensity to migrate of its dwellers. However, the basic neoclassical theories, which link the migration process directly to the differences in marginal productivity seem maintain their importance in explaining the international migrant flows in the contemporary world, as the real wage differentials seems to be the main reason behind the international labor migration. The labor mobility as defined in the neoclassical migration theory is perceived as one of the basic tools for restoring the economic equilibrium between countries, especially in case of the asymmetric demand shocks under the fixed exchange rate regime. The mechanism, combined with the push-pull approach, when working properly, should lure the redundant workforce from the countries affected by economic downturn and direct it to those experiencing economic growth. As the result of such relocation, it is also rational to expect higher trade volumes between the countries involved in migration process.

In this paper the impact of the differences in the economic prosperity and GDP growth on the migration rate and trade is analyzed with the dataset from the Polish migration to the

United Kingdom in years 2004 – 2010. The findings of this study indicate that wage differentials resulting from the different levels of economic development and the differences in the economic growth rate can be perceived as the factors related to migration flows. These flows can boost imports from the migrants' origin to destination country. Moreover, the study reveals that the predominant factors driving migration are rooted in the destination country. The study also reveals great importance of institutional factors for the international labor migrations.

## II. PUSH – PULL APPROACH VERSUS THE ECONOMIC CYCLE

It was long ago when researchers discovered that the labor mobility plays an important role in stabilizing economy during the economic downturn. One of the first cases when it was clearly observed was the case of migration between Great Britain and the USA. In the analysis of the migrant flows between these two countries the net migration rates for the United Kingdom were positively correlated with economic downturns in this country and correspondingly net migration rates in the USA were positively correlated with the economic downturns in the USA (Thomas 1973). Although it is not clear whether the migration process itself resulted from the massive lay-offs or rather serious cuts in salaries in the country affected by crisis (actually we might assume it was the former case in the US and the latter in the UK due to the labor market regulations and the role of labor unions), the mechanism of restoring the equilibrium on the crisis - affected labor market was working well, by feeding it from the spare factor of production.

The situation described above could be explained with the so called push – pull approach (Lee 1966). The push – pull approach, based on the Ravenstein's migration theory (Ravenstein 1889), claims that migration process is triggered by the inferior economic condition of one region or a country, which 'pushes' people out of it (push factor) towards

sound economy in other region (country) which ‘pulls’ workforce into that region. This was the case in the migration between the US and the UK in the XIX and the early XX centuries, as the business cycles of these two countries were negatively correlated. Hence, the economic downturn in the United Kingdom could be considered as the push factor and the simultaneous prosperity in the US – as the pull factor. In this paper both, push and pull factors will be considered while seeking incentives for migration. This is not considered to be the approach’s weakness (de Haas 2008), but rather its ability to explain the consequence of rational behavior resulting from the economic cycle. Although push – pull approach cannot be considered as a complex economic theory due to lack of precision, broad spectrum of various factors, which are taken into consideration, and static rather than dynamic approach (de Haas 2010), it appears to be the appropriate tool for explaining the influence of the business cycle on the labor force flows between the US and the UK in the industrial era. The findings show that although it might have been useful for explaining the migration in the Victorian era, nowadays it has reduced its explanatory power due to globalization of the business cycle. This means that the business cycle in the ‘globalized’ world economy is to large extent synchronized (see eg. Bordo and Helbling 2010), especially in the EMU (Inklaar and de Haan 2001). In the latter part of this paper this assumption will be verified on the example of the migration flows between the United Kingdom and Poland after 2004.

### III. THE LIMITATIONS OF THE NEOCLASSICAL PERSPECTIVE

The push-pull approach, when perceived as described above, is in line with the neoclassical model of labor migration, which assumes that the wage differentials (whether absolute or expected) between countries are the driving force of international labor migration. Consequently, the rationale behind this model is that the migration process will continue until the differences in marginal labor productivities (which are reflected by wages) disappear.

Labor migration in the neoclassical model is in fact the substitute for international trade in goods and services. Thus it might be assumed that the equilibrium on the labor market, in the example of migrations between the US and the UK in the industrial era, was restored according to the neo-classical model of labor migration (Todaro 1969, Borjas 1989).

The neoclassical approach certainly has its weak points, which cannot be overseen. First, it does not explain the reality: if it did, the wages would be equal in the global scale, which is not the case. The first major reason for this is the existence of so called “intervening forces” (Lee 1966), which can be migration policies implemented by countries, structural forces as thought by historical structuralists or any third parties, which could prevent or abrupt the free market migration processes. The importance of the intervening forces will be shown in the latter part of this paper. Second, it must be noticed that this is an universal model, which can actually be used to explain migration of labor as well as capital flows (capital flows are directed reversely to labor). This shows the model’s main weakness, which is the fact that it does not take into account that the labor force is different factor of production than capital. As the latter can travel across borders with only one condition, which is profit maximization, the decision process of human beings is far more complicated and goes beyond the economic profit maximization formula.

Therefore there are numerous non-economic factors, which must be taken into account when analyzing labor migration, just to mention one - the importance of risk aversion in the migrant’s decision process (Stark 1982). Although there were attempts to supplement the model – e.g. with the deportation risk factor (Todaro & Maruszko 1987), they were certainly not sufficient. The labor demand structure in the incoming country is also of high importance, as the immigrant economies do often look for specific skills, traits, or areas of specialization (Bauer and Zimmermann 1998), but these will be a subject of interest for the New Economics of Labor Migration (Stark 1985) not earlier then in the 1980s. Finally, the model assumes the

perfect information about wages in the global scale. Although the neoclassical model's weaknesses are real, it still explains the basic rationale behind the majority of migrations in the contemporary world, since most of them result from wage differential between the origin and destination country. The model is also useful for explaining the mechanism of the international migration in times of economic crisis.

The conclusions arising from the neoclassical model were used by Mundell, who claimed that labor mobility is one of the crucial tools for dealing with asymmetric demand shocks under the fixed exchange rate system in the optimum currency area /OCA/ (Mundell 1961).

#### IV. THE IMPORTANCE OF LABOR MOBILITY AS A SUBSTITUTE FOR TRADE IN TIME OF ECONOMIC CRISIS

The mechanism of restoring the economic equilibrium will be explained on a basis of one simple model of two countries, A and B. Suppose that country B is struck by the negative demand shock, resulting in the shift of consumer preferences from country B to country A. There are many possible causes of such decline in demand, but let us assume that the shift in consumers' preferences resulted from the revolutionary technical innovation in country A, which made the products of country B no longer attractive from the buyers' point of view. The hypothetical chain of events under the floating exchange rate could restore the equilibrium in the following way: the drop in demand in country B results in the lower demand for its national currency, which triggers the depreciation process resulting from the excess supply of this currency in the world market. The lower value of B's currency means that the exports of this country become more competitive and lead to increasing production and exports. This is because the goods produced by B are now relatively cheaper for the foreign customers.

Hence the demand increases, leading to higher output and exports, which restores the initial equilibrium.

The situation in country A is just opposite: the increased demand for goods is transferred to the currency market and causes the A's currency to appreciate, which makes the goods too expensive for the foreign customers. The demand is decreasing, exports numbers fall, and the equilibrium output is restored in the initial point. If the market processes failed to restore equilibrium, the independent central bank could intervene by increasing the money supply / reducing the interest rate in country B. This would have the multiplied effect on the output and demand, which would return to the equilibrium level. In country A on the other hand, the central bank could raise the interest rate / decrease the money supply, which, through the multiplier of the open economy, would affect the output and the demand by reducing them and restoring the equilibrium level.

These two sequences of events, although simplified, help to understand how the adjustment process works in the floating exchange rate system, with governments controlling the money demand and supply with the interest rate. Of course the model presented above does not take into account the effects of such policies as e.g. the inflationary effect in the open economy, especially the one based on tradables, (i.e. goods being subject to foreign exchange) (McKinnon 1963), but they are not relevant for the purpose of this paper.

Now let us assume that A and B are the members of the monetary union, which means they have fixed exchange rate and one common central bank, whose main political task is to prevent inflation. The central bank can regulate the money demand or supply by adjusting the interest rate but only in reference to the entire monetary union, and this would prove useful only if the A&B were struck by the crisis simultaneously in favor of some other country C. However, the question is how to restore the equilibrium between A and B when one of them is experiencing the economic downturn According to the OCA theory, the adjustment

processes must be based on either the elasticity of wages and prices, redistribution system or mobility of labor (Wójcik 2005, Bentivogli and Pagano 1999). The first condition is rather illusionary in the contemporary world. Introducing the redistribution system, on the other hand, is based on political decisions and requires setting of the very precise criteria of redistribution. It creates many additional questions, among which the question on the amount of compensation and the potential versus real loss estimation seem to be the hardest to answer. Hence the labor mobility might be the decisive criterion of the success of monetary union.

Let us return to our simple model analysis with two countries, A & B. If the adjustment processes were to be implemented through the international labor migration, the sequence of events could be as follows: the decrease in demand in country B causes the labor force outflow. This means that the country lost part of its resources of labor, which makes the production level fall, which leads to the reduction of the aggregate supply and restoring of the equilibrium. The opposite sequence takes place in country A: the rise in aggregate demand “pulls” the workforce from country B, then aggregate supply increases and the equilibrium is restored. Although due to the labor migration between A and B the economy of each country is again in equilibrium, it is important to emphasize that the initial equilibrium levels are restored with the new output level – higher than before the shock in country A, and lower than before the shock in country B. The different output levels are the “price” which countries have to pay for the unchanged price levels in reference to the pre-crisis conditions.

It must be noted, however, that the mechanism of labor migration as an equilibrium – restoring tool is based on several assumptions, including the one, that the excessive labor supply characteristics, in the economy affected by the crisis, reflects the characteristics of the labor demand in the destination country.

## V. INTERVENING FORCES AS THE MAIN INHIBITOR OF INTERNATIONAL LABOR MIGRATIONS

After the Poland's accession to the European Union, three of the former EU member states (United Kingdom, Ireland and Sweden) decided not to set any transitional periods, which would protect their labor market from the immigration from the new member states. Soon after the 2004 EU enlargement the propensity of the Polish workforce to migrate to the British Isles turned out to be higher than expected. In the year 2002 there were 24 thousand Polish migrants in the UK and as little as 2 thousand in the Republic of Ireland. The opening of the British and the Irish labor markets triggered the immediate migration process. The Polish population at the end of 2004, only eight months after the barriers were eliminated, rose over six times in Ireland and over five times in the UK, compared to this of 2002. The corresponding number of the Polish immigrants at its peak in the 2007 was estimated at almost 700 thousand in the UK and at 200 thousand in Ireland.

These statistics clearly indicate the importance of the intervening forces, such as migration laws, as the inhibitors of migration process: it took only elimination of these barriers in three EU countries to cause the outward migration stream from Poland, which amounted to almost 900 thousand people, with the vast majority of them leaving Poland for the United Kingdom.

Although media claim the number of Polish immigrants in the UK to be higher than the official statistics (Kłós 2006), the data on the Polish migration to the UK seem not to be underestimated. The reason for this is that immigrants in the UK are obliged to register in the British Workers Registration Scheme, unlike eg. in the Netherlands, where temporary workers do not have any registration obligations. According to the Workers registration scheme, the share of the Polish immigrants in the total number of immigrants from the new EU member

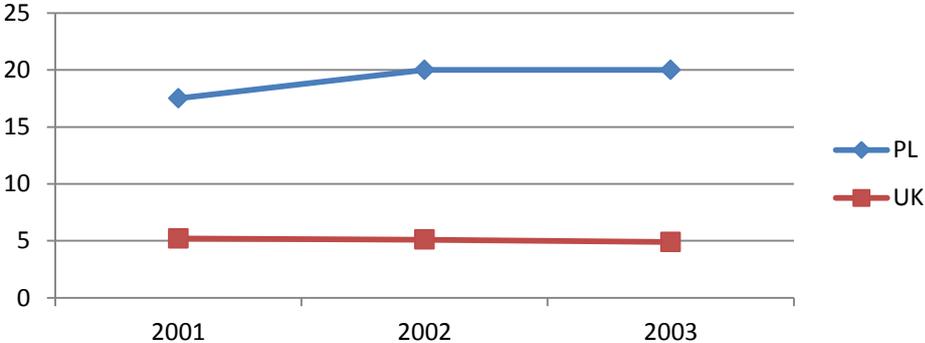
states in 2007 was estimated at 66%. The vast majority of the migrants (82%) was relatively young, i.e. between 18 and 34 years old, with the median age of 26.

## VI. THE NEOCLASSICAL APPROACH TO THE POLISH MIGRATION TO THE UNITED KINGDOM AFTER 2004

The analysis of the reasons behind the Polish migration to the UK after 2004 on such a large scale reveals the importance of economic factors in analyzing migration processes. In this paper three main economic indicators will be analyzed, in order to explain the migrant flows from Poland to the UK. These indicators, which are GDP per person PPP, unemployment rate and the minimum wage, will be analyzed within the time frame of 2001-2003, prior to mass migration, as decisions about the international migration require some time to take effect.

The analysis will start with the unemployment rate, as it is the basic indicator, which describes the overall condition of the labor market. High unemployment rate might be one of the most important factors, which influence the decision on emigration. The chart 1.0 indicates the differences between the unemployment rate in Poland and in the UK.

Figure 1.0 The difference between the unemployment rate in Poland and the United Kingdom in 2001 – 2003.



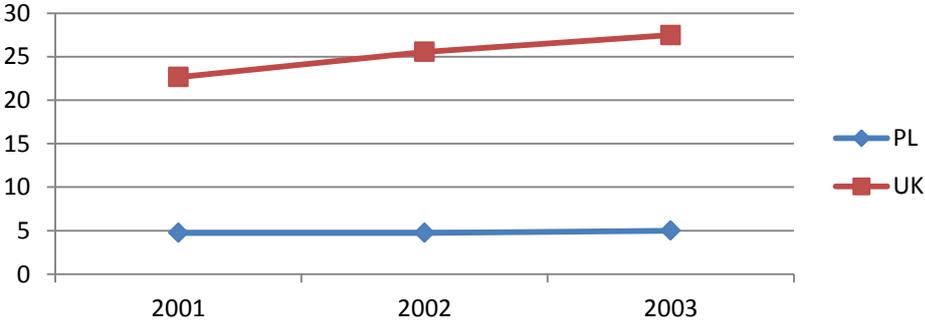
Source: author’s analysis on the basis of OECD data

As can be seen from the figure 1.0, the difference in the unemployment rate in Poland and the UK amounted to 12 percentage points in 2001 in favor of the UK. This difference gradually grew, reaching over 15 percentage points at the end of 2003.

The difference in the minimal wage levels is another factor, which can influence the propensity to migrate. The comparison of the minimum wage levels in Poland and in the UK raises methodological difficulties. First of all the minimum wage level in Poland is set on the monthly basis, and in the UK on the hourly basis. Secondly, in the UK the minimum wage level depends on the employee's age. Finally, in the UK the minimum wage level changes during the calendar year. All of these factors were taken into consideration in the subsequent analysis by estimating the average hourly minimum wage level for the UK. It was assumed for the Polish economy, that the monthly pay is a sum of 160 working hours. The analysis was also limited to the minimum wage level for employees aged over 22 in the British case.

The figure 2.0 shows that the minimum wage was over three times higher in the UK than in Poland in every of the years subject to analysis and grew constantly throughout the analyzed period.

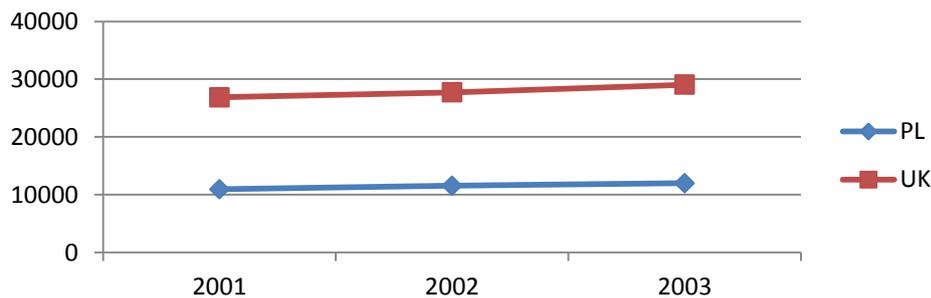
Figure 2.0 The differences between the minimum wage level in Poland and the United Kingdom in 2001 – 2003, on the hourly basis, in PLN



Source: author's analysis on the basis of European Industrial Relations Observatory oraz Department for Business, Innovation & Skills and the Polish Central Statistical Office

The last of the analyzing indicators is the GDP per person, PPP, which is the basic economic indicator describing the overall condition of the economy. As shown on the chart 3.0, the value of the GDP per capita PPP in the UK was about 2,4 times higher than the corresponding value in Poland during the entire analyzed period.

Figure 3.0 The differences between the GDP per capita PPP level in Poland and the United Kingdom in 2001 – 2003, in USD



Source: author's analysis on the basis of the Polish Central Statistical Office, IMF, NBP

All of three indicators show substantial differences in the economic performance between Poland and the UK in the three-year period preceding the Poland's accession to the EU. According to the neo-classical model and the push-pull approach, these differences should result in the migration process from Poland to the UK, which was the case after the intervening forces were removed.

## VII. THE INTERCONNECTIONS BETWEEN THE DYNAMICS OF MIGRATION, ECONOMIC GROWTH AND TRADE

The final section of this paper is dedicated to the analysis of the interconnections between the dynamics of the migration in reference to the dynamics of the economic growth and the subsequent dynamics of trade volumes.

The Pearson correlation coefficient was first used to analyze the dependence between the specific sets of data, i.e. (a) the dependence between the annual growth rate of the Polish migration to the UK and the annual growth rate of the British GDP, (b) the dependence between the annual growth rate of the Polish migration to the UK and the annual growth rate of the Polish GDP, (c) the dependence between the annual growth rate of the Polish migration to the UK and the annual growth rate of the difference between the British and the Polish GDP and (d) the dependence between the annual growth rate of the Polish migration to the UK and the annual growth rate of the trade volumes (exports and imports of goods) between Poland and the United Kingdom.

These dependences were analyzed in the period of 2004 – 2010, with the following methodological provisions: (I) although the analysis will give some insight in the relevance of the push and pull factors for the migration process and trade volumes between the UK and Poland, it must be admitted that unfortunately the period of 2004 – 2010 is not long enough for the statistical dependence analysis to allow for firm and definite conclusions (II) the migration rate growth was analyzed in the  $t-1$  period versus the rate of GDP growth. The reason for that was the simplifying, yet reasonable assumption, that the GDP growth in the year  $t$  will trigger the migration flows in the following year  $t+1$ , (III) the GDP was measured as per capita, PPP, in US dollars, (IV) the trade volumes dynamics was analyzed in the  $t+1$  period versus the migration flows because it was assumed that the migration flows in the year  $t$  will influence the exchange of goods in the year  $t+1$ .

The analysis of (a) focused on the importance of pull factors, i.e. it was assumed that the economic growth in the UK was the incentive for the Polish workforce to migrate to the UK. The Pearson correlation coefficient at 0,447 shows the dependence between the two sets of data, which is positive and moderate (values of the coefficient over 0,4 might be even interpreted as strong, depending on the scale), which means that the GDP growth rate of the

United Kingdom and the migration rate growth between Poland and the UK were positively correlated to the moderate degree. The push factor, on the other hand, as analyzed in (b) was not significant in the migration process: the relation between the analyzed sets of data was at -0,007, which is interpreted as no relationship between the Polish GDP growth rate and the migration process. The analysis of (c) was aimed at combining the push and pull factors in analyzing the migration stream. This proved to be the most dependent dataset. The Pearson correlation coefficient is the highest of the three analyzed cases, reaching the value of 0,667, which can be interpreted as relatively strong dependence. This means that the changes in differences in the economic growth between the United Kingdom and Poland were linked with annual growth rate of the Polish migrants to the UK to the highest extent of all the three analyzed cases.

It was expected that the Polish immigrant population, which constituted not more than 3% of the total British workforce, will not make significant difference in terms of increased trade volumes between the United Kingdom and Poland (d). However, the findings show that the Polish migration to the United Kingdom might have had some influence on the exchange of goods. The Pearson correlation coefficient shows the positive, relatively strong dependence of 0,519 between the immigration of the Poles in year  $t$  and the imports from Poland in year  $t+1$ . Moreover, the corresponding coefficient for the UK's imports from the entire EU is as low as 0,273. It was also discovered that the coefficient regarding UK's exports to Poland for the given period is at 0,316. This proves that migration flows might influence trade in goods, and that direction of the trade flows is the same as the direction of migration.

## CONCLUSIONS

Although the theories grouped under NELM are revolutionary in explaining the migration flows in the contemporary world, the traditional neoclassical approach can still be useful, especially in the macroeconomic approach. The push – pull framework, although criticized, is helpful in the migration analysis with reference to economic indicators. It also helps to understand the importance of labor mobility under the fixed exchange rate regime, and explains why it is crucial for every monetary union. However, the push and the pull factors must be analyzed together, as in fact they mirror each other. Low GDP per capita, high unemployment level and low minimum wage (i.e. push factors) are the incentives for emigration. These factors, confronted with relatively high GDP per capita, low unemployment level and high minimum wage (i.e. pull factors) in another country, could be the reason for choosing it as the migrants' destination.

Although this approach may have some weaknesses, it seems to be applicable to the analysis of the migration flows between Poland and the United Kingdom. The Pearson correlation of the migration versus GDP growth in the UK and Poland in the period of 2004-2010 revealed the moderate interdependence between the annual growth rate of the Polish migration to the UK and the annual growth rate of the British GDP, no dependence between the annual growth rate of the Polish migration to the UK and the annual growth rate of the Polish GDP and strong dependence between the annual growth rate of the Polish migration to the UK and the annual growth rate of the difference between the British and the Polish GDP. This led to conclusion, that the difference in the GDP growth rate between Poland and the United Kingdom, which can be perceived as an indicator, combining the push and pull factors, influenced the migration flows between these countries. Yet another conclusion is that the intervening forces in form of migration laws were the major inhibitor of migrant flows between Poland and the United Kingdom - when they were removed, the Polish population in

the British Isles grew 5 to 6 times within eight months. This resulted in the relatively higher dynamics of British imports of Polish goods, compared to imports from other EU countries.

## References:

- Bentivogli C., Pagano P., *Regional Disparities and Labour Mobility: the Euro-11 versus the USA*, Labour, 13, 1999.
- Bauer T., Zimmermann K. 1998. *Causes of International Migration: A Survey*. [in] *Crossing Borders: Regional and Urban Perspectives on International Migration*, ed. P Gorter, P Nijkamp, J Poot, 2010.
- Borjas., G. J., *Economic theory and international migration*, International Migration Review, 23, 1989.
- De Haas H., *Migration and development. A theoretical perspective*, International Migration Institute University of Oxford Working papers, 9, 2008.
- De Haas H., *Migration Transitions: a Theoretical and Empirical Inquiry into the Developmental Drivers of International Migration*, International Migration Institute University of Oxford Working papers, 24, 2010.
- Gáková Z., Dijkstra L., *Labour mobility between the regions of the EU-27 and a comparison with the USA*, Economic and Quantitative Analysis Unit of the Directorate General for Regional Policy of the European Commission working paper, 2010.
- Inklaar R., de Haan J., *Is there really a European business cycle? A comment.*, Oxford Economic Papers, 53, 2001
- Kłós B., *Migracje zarobkowe Polaków do krajów Unii Europejskiej*, BAS, Infos, 2, 2006
- Lee E., *A Theory of Migration*, Demography, 3, 1966.
- Massey D. et. al.; *Worlds in Motion. Understanding International Migration at the End of the Millennium*, Oxford University Press, New York, 1998.
- McKinnon R., *Optimum Currency Areas*, American Economic Review, 53, 1963.
- Mundell R.A., *A theory of Optimum Currency Areas*, The American Economic Review, 51, 1961.
- Ravenstein, E. G., *The laws of migration*, Journal of the Royal Statistical Society, 48, 1889.
- Stark O., Bloom D.E., *The New Economics of Labor Migration*, American Economic Review, 75, 1985.
- Stark O, Levhari D. *On Migration and Risk in LDCs*. Economic Development and Cultural Change, 1982.
- Thomas B., *Migration and Economic Growth: A Study of Great Britain and the Atlantic Economy*. Cambridge, 1973.
- Todaro M.P., Maruszko L., *Illegal migration and US immigration reform: A conceptual*

*Framework*, Population and Development Review, 13: 1987.

Todaro, M. P., *A model of labor migration and urban unemployment in less-developed countries*, American Economic Review, 59, 1969.

Wójcik C., *Przesłanki wyboru systemów kursowych (Exchange rateregimes)*, Warszawa 2005.

*Data sources:*

*All of the statistical data in this paper, unless stated otherwise, were acquired from:*

*Polish Central Statistical Office: [www.stat.gov.pl](http://www.stat.gov.pl)*

*OECD: [stats.oecd.org](http://stats.oecd.org)*