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DO WE NEED MORE IMMIGRATION? SOCIO-CULTURAL DIVERSITY AND EXPORT SOPHISTICATION IN EU 28 COUNTRIES

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Abstract

One of the main concerns for policymakers is the ability of their nations to grow and to provide their citizens with a better standard of living. In a globalized world, this ability is increasingly being linked with the ability to export and structure of exported products. It is widely held that sophisticated knowledge and technology-intensive products offer higher prospects for growth than standardized price competitive goods. Ever since the work of Schumpeter migrations have been considered as an important driver of entrepreneurship, innovation, and technological progress. The social and professional networks of foreign-born individuals mobilize information, know-how, skills and capital to start new firms. They also provide valuable contacts and resources for both resident and newly arrived immigrants. Yet, the existing literature notes that the impact of immigration on innovations in the EU is smaller than that in the USA due to the greater cultural and institutional barriers in the former entity. The understanding of the immigrant role in the economic performance of the EU is particularly important since the growth of the foreign-born population in the EU has been faster than anywhere else in the world. Recent waves of EU enlargement and immigration pressures from other parts of the world have further facilitated this trend. Bearing above said in mind this paper explores the relationship between export sophistication and immigration in EU28 countries over the 2006-2015 period. A dynamic panel estimator is used to discern between short and long-run effects of immigration on the international competitiveness of EU economies. Our results suggest that greater socio-economic diversity increases the sophistication of exports in both the short and long run. The long-run effects are about twice as large than short-run ones.

Keywords: migration, export sophistication, European Union, panel analysis

1. INTRODUCTION

Two features have marked the modern globalization process, a cross-country migration of population and the rise in international movement of capital, goods, and services. The effects of the former process on host country have received much attention from both academics and policymakers. Those against immigration often base their arguments on a thesis about the inability of integration into society and economic flows due to the lack of social capital. Arguments in favor of migrations emphasize the beneficial effect of migrants and socio-cultural diversity on creativity and innovations. Immigrants are in this framework portrayed as carriers of ideas and knowledge pivotal to the development of entrepreneurship and innovations (Bodvarsson and van der Berg, 2009). It was noted already by Schumpeter (1934) that lower attachment to the traditions of the society makes the population of recent immigrants less reluctant to innovate. Empirical evidence from some countries (Saxenian, 1999; 2002) points to the important role of social and professional networks of foreign-born individuals on the mobilization of information, know-how, skills and capital for new business ventures.

The growth of modern economies is closely linked to the second feature of globalization, a rise in the international movement of capital, goods, and services. The ability to export provides countries with the ability to pay for imports of goods and services they would otherwise be in shortage of but also brings an inflow of capital that can be used to provide their citizens with a better standard of living. More recently and building on the premises of endogenous growth models the economists have started to argue that the prosperity of nations is determined with the structure or sophistication of their exports. The essence of such reasoning is that the productivity and potential for knowledge spillovers to upstream, downstream, and rival firms are not equally embodied in all goods and that specialization in highly productive, sophisticated goods bears much higher growth potential than price-competitive standardized products. The above reasoning has spawned interest of policymakers across the globe into the structural transformation of their countries' exports and factors and forces that can facilitate movement of national export structure towards more sophisticated products. Understanding of export patterns and their drivers is among key contemporary economic questions for unleashing of growth potential in the globalized world.

The relationship between migrations and export sophistication has so far been investigated mostly indirectly through the impact of former on innovations. Yet, it is well established that human capital presents important determinant of structural transformation of exports. The recent upsurge of interest among European policymakers into the building of most competitive global exporter of knowledge-driven goods as well as raising concerns within EU member states over immigration policy make it worth examining the relationship between these two processes. In addition, the intra-EU movement of workers over the past two decades makes it further interesting to examine whether greater socio-cultural diversity caused by migration leads to higher export sophistication. To address this issue, an index of export sophistication is constructed, and the dynamic panel analysis is employed to determine short and long-run effects of migration on export sophistication. The rest

of the paper is structured as follows. Next section addresses the importance of migrations for the upgrading of national production and exports structure from the theoretical and empirical point of view. Descriptive analysis of export sophistication and migration patterns in EU28 member states over the 2006-2013 period is provided in section three. Section four discusses the methodological approach while findings are presented in section five. Section six concludes.

2. MIGRATIONS, INNOVATIONS AND EXPORT UPGRADING

Immigration is one of the most controversial and politically charged processes. Allen et al. (2018) note that the migrations are central to the development of modern nation states. Yet, international public opinion polls repeatedly show that while the public is more open to international trade and financial integration, skepticism exists towards expanding the inflow of immigration. In European countries such as France, Austria, and Switzerland, far-right parties have successfully rallied voters by explicitly embracing anti-immigrant messages. Moreover, due to the political instability and war in Syria, immigration has recently become a key political and security issue in the EU, which raises key economic questions as well. It is obvious when national economies combat with declining economic trends, immigration into one's country is faced with reduced support for open immigration policies. Sectoral inflows are not characterized by these unsatisfactory effects when national economies are doing comparatively better and confidence is on a higher level. Similarly, employment growth in one's sector tends to be associated with more liberal immigration preferences.

In a globalized economy, the cross-border movement of goods, capital, and labor can come with substantial distributive consequences. For example, David Card (2009) explains US immigration's impact on wages, rents, taxes, internal migration, skill composition, population growth and the ethnic and income composition of neighborhoods and schools. Level of countries' development may affect the relationship between immigrant flows and the level of wages of natives. Immigrants often move to boom economies, in which case natives are confronted with a decline in their wages (Dancygier and Donnelly, 2012). Studies examining gateway cities indeed often fail to find wage effects following increases in the supply of local labor. In the face of locally segmented labor markets and limited worker mobility in the short term, the increased demand that accompanies the arrival of large numbers of migrants can mitigate downward wage pressures (Card 1990, 2001). Moreover, if immigrant-working force seeks employment in economies that are growing, they may provide the necessary reinforcement to meet rising demand (Massey 2008). Thus, native workers may not be fired, and any negative effect on their wages may be disguised by the offsetting increase in wages since the higher wages that would have arrived in the absence of migration are never observed.

National economic conditions could have a significant impact on the relationship (or/and perception) between immigrant-workforce and a native workforce of the observed economy. According to Dancygier and Donnelly (2012), during times of economy's expansion, native-workforce may feel less locked into their current sector of employment as job opportunities abound and help offset mobility

costs. During a recession, the native workforce may consider the inflow of immigrants into their sectors as an economic threat. In another word, in the economic downturn of the country, immigrant workers are often the first ones to be laid off, ahead of their native co-workers. During recessions, joblessness among immigrants typically rises faster than among native labor, and net migration rates decline. The statistical proof can be found in the 2007–2008 downturn when the increase in the immigrant unemployment rate in the EU-15 was twice that of natives (OECD 2011a, 74). The justification of the previous thesis can be identified within the research of Peri (2010) who confirms that the labor market impacts of immigration are worse for natives during downturns than during expansions.

Literature investigates the relationship between natives and immigrants in detail. The empirical evidence of Borjas (1994, 1995) concludes that more recent immigrant waves will remain economically disadvantaged throughout their working lives; that this disadvantage may be partially transmitted to their future generations; that recent immigrants are more likely to participate in welfare programs than native workforce; and that immigration may have contributed to the increase in wage inequality observed during the 1980s. Within the research of Borjas (1995), it has been discussed that natives do benefit from immigration mainly because of production complementarities between immigrant workers and other factors of production and that these benefits are larger when immigrants are sufficiently "different" from the stock of native productive inputs.

Historical evidence, however, suggests that immigrants may have adverse effects on economic outcomes of host areas over longer periods of time. Von Berlepsch, Rodriguez-Pose and Lee (2019) observe positive effect of migration on income per capita levels of US counties in the short run and with the time span of even 100 or 130 years after arrival of immigrants. Immigrants have a long lasting impact to local economic development through cross-generational transmission of the ethnic capital and mentality. Yet, the positive effects of migration, according to these authors depend on the ability of immigrants to better integrate in host country society. The greatest effects come from children born to foreign-origin mothers and domestically-born fathers who were able to integrate them in the society.

Besides above-mentioned effects existing literature analyses the impact of skilled immigration on innovation as a driver of technological progress, productivity growth, and consequently economic growth. According to Hunt and Gauthier-Loiselle (2010), if immigrants in the USA increase patents per capita, they may increase output per capita and make natives better off. Authors discuss that one-way skilled immigrants could boost patenting per capita is through a higher level of concentration than natives in science and engineering occupations. Immigrants are likely to be over-represented in such occupations. Scientific and engineering knowledge transfers easily across countries since it does not rely on institutional or cultural knowledge, is not associated with occupations with strict licensing requirements like medicine and does not require the sophisticated language skills of a field like law (Hunt and Gauthier-Loiselle (2010); Chiswick and Sarinda,2007).

Skilled immigrants could also boost the patenting process per capita if a mixture of immigration policies and immigrant self-selection leads them to be more educated or of higher unobserved inventive ability. Immigrant inventors may, in turn,

transform natives in the more inventive workforce. Even immigrant-workforce who do not patent themselves may increase patenting by providing complementary skills to inventors, such as entrepreneurship. Conversely, negative spillovers could offset immigrant inventors' contributions, for example, if their presence discourages natives from working in science and engineering law (Hunt and Gauthier-Loiselle (2010); Brojas, 2007). On the other side, Hunt and Gauthier-Loiselle (2010) discuss the faster increase in unskilled immigration than skilled immigration in the European low- and middle-income source countries since the Immigration Act of 1965. Studies in developed countries that have a high level of immigration and a highly skilled foreign-born population, such as some EU countries and the USA, have identified a positive relationship between the presence of immigrants and the level of innovation in firms.

Using a 1940-2000 state panel, Hunt and Gauthier Loiselle (2010) measured the impact of immigration on innovation and the individual innovation factors and regional determinants of innovation in the USA. Their empirical analysis indicates that immigrants account for 24 percent of patents, twice their share in the population. They concluded that the 1.3 percentage point increase in the share of the population composed of immigrant college graduates, and the 0.7 percentage point increase in the share of post-college immigrants, each increased patenting per capita by about 12 percent based on least squares 19 and 21 percent based on instrumental variables. The 0.45 percentage point increase in immigrant scientists and engineers increased patenting per capita by about 13 percent based on least squares 20 and 32 percent based on instrumental variables. Matloff (2013) concluded that the US technology industry, which not only employs foreign workforce to reduce labor costs but uses native employees to promote research and development as well.

The evidence of the importance of the education of migrants has been confirmed elsewhere as well. Fassio, Montobbio and Venturini (2019) show on samples from the United Kingdom, Germany and France that highly educated migrants facilitate innovation with effect being particularly high in industries with greater openness to trade, high inflows of foreign investment and greater ethnic diversity. At the same time this paper signals that selection of migrants in a way that suits the needs of individual industries creates greater effects on the innovativeness of analysed economies.

Using regional data for Germany, Niebuhl (2012) proved that differences in knowledge and capabilities of the workforce from diverse cultural backgrounds boost R&D activities. Moreover, Simonen and McCann (2008) examined the link between innovations of Finnish firms and the proportion of their foreign workforces. They have found a positive impact on innovation from hiring foreign workers who have worked in the same industry elsewhere. Downie (2010) examines different aspects of innovation across areas such as business, research, the culture sector, and global commerce in Canada. They didn't exclude effects on the individual immigrant, the firm, and the national and international economy. At every level of analysis, the author confirmed that immigrants have a beneficial impact on innovation. According to the literature, it could be concluded that a number of empirical studies explained the advantages and disadvantages of immigration. Theoretical background of this paper confirmed the economic and social roles of immigrant workers within immigrant-receiving economies.

The above findings have important implication for the understanding of export structural transformation towards more sophisticated products as such goods are characterized by a high degree of innovativeness. Rauch and Triniade (2002) point to the positive effect of migrants in establishing connections among producers in the host country and home country market. Similarly, Peri and Requena-Silvente (2010) observe the export-creating effect in Spain caused by immigrants. This effect manifests itself through the establishment of business and social networks and reduced costs of doing business with foreign markets. Most importantly, the study obtains evidence of beneficial effect of immigrants on exports of sophisticated manufacturing goods. Similar findings have been observed in other EU member states as well. Hatzigeorgiou and Lodefalk (2016) observe a positive impact on the export performance of Swedish firms from skilled migrants.

3. EXPORT SOPHISTICATION AND MIGRATION IN EU MEMBER STATES

The sophistication of exports from a given country is commonly determined on the basis of technological or knowledge intensity bounded in its goods and services. One of the most widely used such classifications is the one provided by OECD (2011b) where goods are classified into four categories based on R&D intensity and R&D embodied in intermediate and investment goods. However, such classification is relative as industries produce a wide range of products with different technological intensity. Furthermore, such classification is not directly applicable to services. Another approach to the determination of export sophistication has been recently proposed by Hausmann, Hwang, and Rodrik (2007). The starting premise here is that goods differ by their levels of productivity. Once the productivity level of a particular good is determined the sophistication of export baskets of individual countries can be revealed on the basis of the proportion of particular goods in the overall structure of their exports. Supposing that the overall exports of country j consist of n goods the total export X of country j can be written as:

$$X_j = \sum_{i=1}^n x_{ij} \quad (1)$$

The productivity level associated with given good i produced by n countries can be constructed as:

$$PRODY_i = \sum_{j=1}^n \frac{\frac{x_{ij}}{X_j}}{\sum_{j=1}^n \frac{x_{ij}}{X_j}} * GDPpc_j \quad (2)$$

In (2) the numerator reflects the share of each individual good in total exports of each country. The denominator is aggregate of these shares across all countries exporting particular good. Hence, this part of expression presents a revealed comparative advantage of each country in good i . The revealed comparative advantage is multiplied with GDP per capita of each country exporting given well. The overall index of productivity embodied in good i is then constructed as an aggregate of weighted GDP per capita across countries where revealed comparative advantages are used as weights. Hausmann, Hwang, and Rodrik (2007) note that such construction

of index eliminates the effect of country size as it weights the country's income more heavily for those countries exporting larger proportions of each given well.

The above-defined method has been applied to the data taken from United Nations Comtrade database of traded goods classified according to Harmonized System (HS) 6-digit classification for the 2006-2015 period. The information on trade value is available for about 6000 goods at this level and for 170 countries. As can be seen from Table 1 the smallest levels of productivity are found among primary commodities whose share of exports is highest among the least developed countries. On the other hand, highest productivity levels are observed among groups of goods whose share of exports is relatively high among developed countries such as the United States, Germany or Luxembourg.

Table 1: Productivity of traded goods 2006-2015

	Product code	Product name	Mean value
Smallest	130214	Saps and extracts of pyrethrum	453
	230220	Bran, sharps and other residuals	571
	530410	Sisal and agawe, raw	588
	261590	Ores, slag and ash	666
	90700	Cloves	742
Largest	590290	Tire cord fabric of viscose rayon	98241
	730110	Sheet piling of iron/steel	96039
	721069	Flat-rolled products of iron	91612
	721633	Angles, shapes, and sections of iron/non-alloy steel	91131
	441139	Fiberboard of wood and other non-ligneous materials	83089

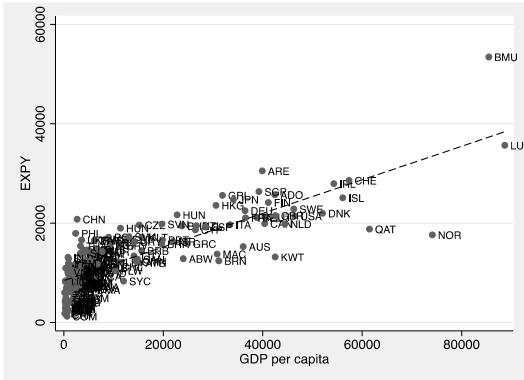
Source: Authors' calculations

As noted previously, the productivity embodied in particular goods can be used to construct a country-wide index of export sophistication. Let export basket of country j consist of n goods. From there the export sophistication index can be calculated as:

$$EXPY_j = \sum_{i=1}^n \frac{x_{ij}}{x_j} PRODY_i \quad (3)$$

In equation (3) export sophistication index is a weighted sum of productivity embodied in each exported product where shares of individual products in the total export basket of country j are used as weights. The plot of EXPY index against GDP per capita on the world sample (Figure 1) reveals that highest values of EXPY are found in the most developed countries, a finding consistent with earlier discussion.

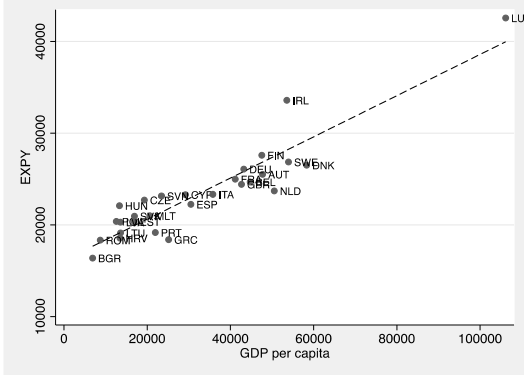
Figure 1: Export sophistication and GDP per capita 2006-2015



Source: Authors' calculations

The same finding holds when one reduces sample to the European Union member states. As can be seen from Figure 2 highest export sophistication values are found among member states with the highest level of GDP. It is also worth noting that practically all new EU member states from Central and Eastern Europe fall on the lower end of export sophistication.

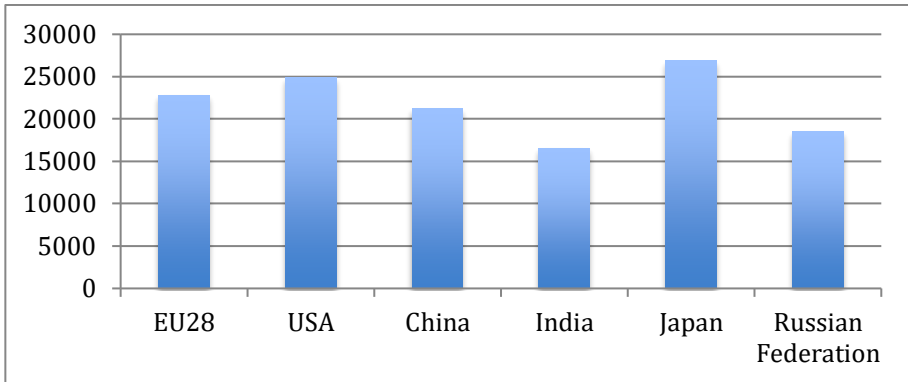
Figure 2: Export sophistication and GDP per capita in EU member states



Source: Authors' calculations

A comparison of EU member states with their main global rivals in terms of export sophistication, United States, Japan, India, China, and Russia in Figure 3 reveals that the EU28 as a whole was outperformed by both Japan and United States over this period. The EXPY value was close to that of China and above both India and the Russian Federation.

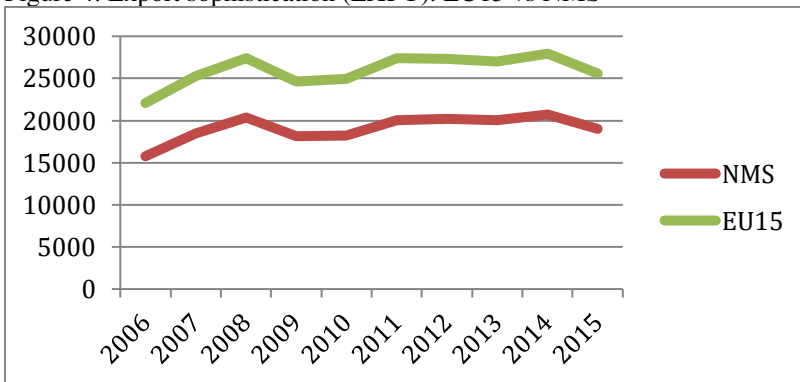
Figure 3: Export sophistication (EXPY): EU vs main global rivals 2006-2015



Source: Authors' calculations

One of the motives for transition and entrance into the European Union among Central and East European countries was the possibility of penetration to new markets. Through much of the past two decades, CEECs were known as producers of standardized price competitive products which can be labeled as less sophisticated goods. To explore whether such a trend has been reversed and these countries moved towards more sophisticated goods a comparison is made between EU15 countries and new member states (NMS) from Central and Eastern Europe in Figure 4. As it can be seen there, the difference in export sophistication between two groups of countries has largely remained stable and the two have followed a similar trend.

Figure 4: Export sophistication (EXPY): EU15 vs NMS

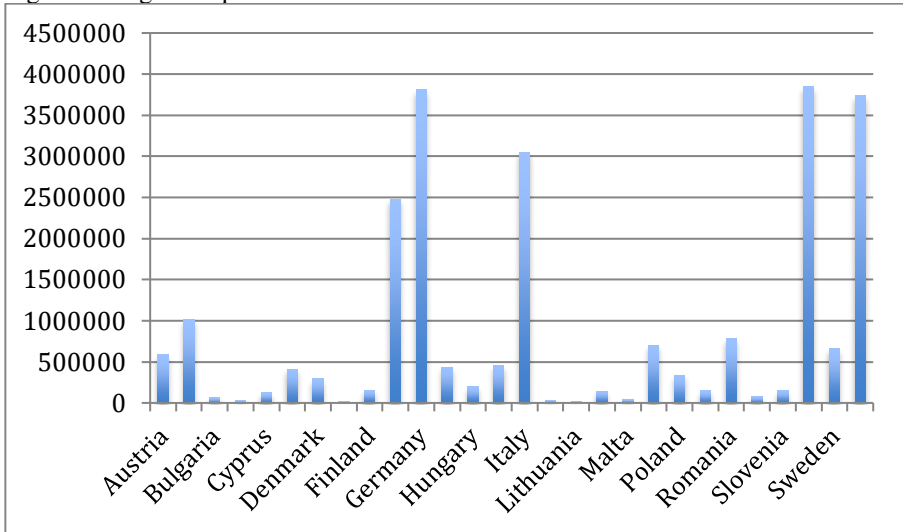


Source: Authors' calculations

A prominent feature of European economies over the past two decades has been a movement of population between EU member states and immigration from countries outside of EU. United Nations Migration data for the 2006-2013 period, the most recent period for which data are available in Figure 5 to reveal that the bulk of immigrants was concentrated in only a few European countries which happen to be

among those with highest GDP per capita, namely France, Germany, Italy, Spain, and the United Kingdom.

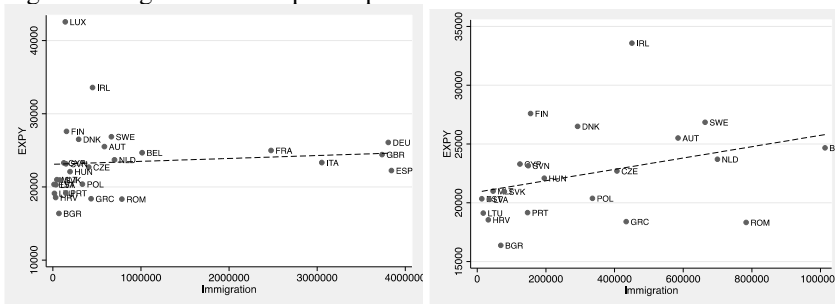
Figure 5: Migration patterns in EU member states 2006-2013



Source: Authors' calculations

As noted previously, there are several channels through which immigrants can contribute to the prosperity of host economy and the competitiveness of its firms and industries ranging from the networks of foreign entrepreneurs, facilitating of creativity and increased innovation activities. Data from Figure 6 provide some support to such argumentation. From Figure 6a the highest proportion of migrants is in countries with the highest values of EXPY. The connection between two holds even after one control for potential outliers in terms of both EXPY (Luxembourg and Ireland) and a number of migrants (Germany, United Kingdom, Spain, Italy, and France) (Figure 6b). Overall, these findings suggest that immigrants could be a potential channel for the improvement of export sophistication. The continuation of the paper explores such possibility in more detail.

Figure 6: Migration and export sophistication in EU member states 2006-2013



Source: Authors' calculations

4. MODEL AND METHODOLOGY OF INVESTIGATION

The roots of export sophistication can be looked for in several areas. On the one hand, the building of export competitiveness is a lengthy process that requires the continuous building of own competitive advantages. In such a process, current results will be closely related to their past realizations. Previous studies have associated this index with several variables recognized in the literature as general determinants of export upgrading. Ever since the endogenous growth models, it has been argued that innovations offer higher potential for differentiation and achievement of above-average returns. Analogously, higher productivity of exports or its sophistication can be expected in presence of higher innovation activity. For this reason, the proportion of GDP invested in research and development is included among regressors. The quality of human capital is another important prerequisite for export sophistication upgrading as it presents the potential for a greater range of discoverable goods. To this end, a percentage of the population with tertiary education also enters the model. Size of the population is included as a control for the potential of the labor force. Hausmann, Hwang, and Rodrik (2007) associate greater labor force with potential for lower costs. We also control for the difference between EU15 countries and new EU member states with a categorical variable. Finally, the migrations enter model with variable measuring the number of foreign immigrants in each of the analyzed countries in a given year.

The analysis is undertaken with the means of two-step dynamic system panel estimator (Arellano and Bover, 1995; Blundell and Bond, 1998). The used methodology enables us to control for dynamics of export sophistication index as well as its correlation with unobserved time-invariant components of disturbance. It is also capable of distinguishing between short and long-run effects of individual variables on the export sophistication. In order to control for universal cross-sectional shocks, the estimation also includes annual time dummy variables. As system estimator tends to produce downward biased standard errors Windmeijer correction was applied. Bearing in mind that migration data are available only for a period up to 2013 this part of the analysis was limited to the 2006-2013 period. Finally, all variables for which such transformation is possible to enter model in logarithmic form.

5. DISCUSSION OF FINDINGS

The estimation is undertaken on a model that takes the following form:

$$\ln EXPY_{it} = c_0 + \beta_1 \ln EXPY_{it-1} + \beta_2 \ln Migration_{it} + \beta_3 \ln R\&D_{it} + \beta_4 \ln HCapital_{it} + \beta_5 \ln Population_{it} + \beta_6 NMS_i + \sum_{t=2007}^{2013} year_t + u_i + v_{it} \quad (4)$$

The validity of the model specification was examined through the number of diagnostic tests. As can be seen from Table A1 in Appendix all relevant diagnostics provide support to our model. Hence, there is an insufficient amount of evidence to reject the null hypothesis of no autocorrelation of the second order, Hansen test suggests that overidentifying restrictions are valid thus giving support to the chosen

instruments. Similarly, difference-in-difference Sargan tests for levels equation and lagged dependent variable signal that system estimator should be preferred over differenced one and that lagged dependent variable does not follow a random walk. Finally, the number of instruments is lower than the number of cross-sectional units (groups). Overall, these diagnostics provide support to the chosen model and enable us to proceed with the interpretation of results.

Table 2. Results of estimation

Variable	Short run	Long run
Lagged dependent variable	0.47***	-
Migrations	0.03**	0.06**
R&D investment	0.02**	0.14**
Human capital	0.001	0.001
Population size	-0.05**	-0.10**
Control variable – NMS	-0.03	-0.06
Constant	5.87***	-

Source: Authors calculations

Note: ***, **, * denote statistical significance at 1%, 5%, and 10% level respectively; *p*-values estimated with two-step dynamic panel estimator with Windmeijer robust standard errors corrections. Annual time dummies included.

The coefficient on lagged dependent variable is statistically significant and positive suggesting that the current sophistication of exports is the outcome of processes that take place over time. The effect of migrations on export sophistication is positive and about two times higher in the long run than in the short run. It is therefore likely that previously mentioned effects such as business networks of immigrants, their impact on creativity and on innovations all together lead to the upgrading of country's exports. Among other variables, the positive impact is observed on R&D investment and a negative one on the size of the population. While the former is expected the latter finding is somewhat surprising. A likely explanation is that this finding is driven with few outliers in our samples such as Luxembourg or Ireland.

6. CONCLUSION

Two pressing issues have marked recent EU policy, the pressure to meet ambitious objectives set in Europe 2020 strategy and the rising negative attitudes towards immigration. Despite significant efforts invested in the building of knowledge-driven economy the lagging of EU behind its main rivals continues. This is also evident, as noted by our paper among others, in the competitiveness of EU exports whose sophistication is lower than that of main rivals such as the USA and Japan. Differences are even more pronounced if one looks new EU member states whose export structure is dominated with standardized price-competitive products. Diminishing of such differences is a challenge for future EU policy.

The improvements in export sophistication require the building of innovation-driven society. The drivers of this process were looked for in numerous areas. One area relatively omitted from such considerations is the role of migrants. Evidence from many countries points to the important role of this group in their economic life from networks of migrant entrepreneurs to establishing of links with their home countries and most importantly their role as drivers of creativity and innovation. Our findings support such reasoning as they indicate that migrants contribute to the sophistication of EU exports.

The impact of migration on export sophistication is confirmed in the short and long run. In a long run, the contribution of migration will be more vital for the sophistication of EU exports. Workforce, the especially high-skilled workforce in developed economies increases productivity which leads to more competitive companies on the international (export) market. However, export sophistication from the previous year has the most significant impact on the export sophistication from the current year. R&D expenditure plays a minor role in export sophistication in the short run but more relevant significance in long run (because of the transformation of R&D to innovations). We concluded that human capital has the smallest impact on the sophistication of EU exports.

Due to the political tensions and negative conflict repercussions, the European Union has received migrants from Middle-East countries. EU developed countries were prone to receive migrants with various level of skills. Therefore, after the incubation stage, which can last for years, the productivity will record increase, as well as the sophistication of EU exports.

Overall, our findings offer several interesting policy implications. They reveal the existence of gaps between the EU and its main rivals as well as between EU member states. The latter is particularly evident when it comes to EU15 and new EU member states. Addressing these challenges should be a matter of interest for both cohesion and trade policymakers. Another finding is the positive impact of immigrants on improvements in export sophistication. It remains a challenge then for EU policymakers to define mechanisms for deeper integration and exploiting of innovation potential of immigrants.

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8. APPENDIX

Table A1: Model diagnostics

Diagnostics	Value
Number of observations	224
Number of groups	28
Number of instruments	20
Wald test	4031***
Hansen <i>J</i> test ($p > \chi^2$)	10.47 (0.23)
Arellano-Bond test first order ($p > \chi^2$)	-2.84 (0.00)***
Arellano-Bond test second order ($p > \chi^2$)	-1.12 (0.26)

Source: Authors calculations

***, ** and * denote statistical significance at 1%, 5% and 10% level respectively

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