Measuring Integration of Migrants
A Multivariate Approach

Anna Di Bartolomeo
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INTERACT
Researching Third Country Nationals’ Integration as a Three-way Process - Immigrants, Countries of Emigration and Countries of Immigration as Actors of Integration

Research Report
Methodological Report
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Measuring Integration of Migrants: A Multivariate Approach

Anna Di Bartolomeo *
Sona Kalantaryan *
Sara Bonfanti *

* Migration Policy Centre, RSCAS, EUI
INTERACT - Researching Third Country Nationals’ Integration as a Three-way Process - Immigrants, Countries of Emigration and Countries of Immigration as Actors of Integration

In 2013 (Jan. 1st), around 34 million persons born in a third country (TCNs) were currently living in the European Union (EU), representing 7% of its total population. Integrating immigrants, i.e. allowing them to participate in the host society at the same level as natives, is an active, not a passive, process that involves two parties, the host society and the immigrants, working together to build a cohesive society.

Policy-making on integration is commonly regarded as primarily a matter of concern for the receiving state, with general disregard for the role of the sending state. However, migrants belong to two places: first, where they come and second, where they now live. While integration takes place in the latter, migrants maintain a variety of links with the former. New means of communication facilitating contact between migrants and their homes, globalisation bringing greater cultural diversity to host countries, and nation-building in source countries seeing expatriate nationals as a strategic resource have all transformed the way migrants interact with their home country.

INTERACT project looks at the ways governments and non-governmental institutions in origin countries, including the media, make transnational bonds a reality, and have developed tools that operate economically (to boost financial transfers and investments); culturally (to maintain or revive cultural heritage); politically (to expand the constituency); legally (to support their rights).

INTERACT project explores several important questions: To what extent do policies pursued by EU member states to integrate immigrants, and policies pursued by governments and non-state actors in origin countries regarding expatriates, complement or contradict each other? What effective contribution do they make to the successful integration of migrants and what obstacles do they put in their way?

A considerable amount of high-quality research on the integration of migrants has been produced in the EU. Building on existing research to investigate the impact of origin countries on the integration of migrants in the host country remains to be done.

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For more information:
INTERACT
Robert Schuman Centre for Advanced Studies (EUI)
Villa Malafrasca
Via Boccaccio 151
50133 Florence
Italy
Tel: +39 055 46 85 817/892
Fax: + 39 055 46 85 755
Email: mpc@eui.eu

Robert Schuman Centre for Advanced Studies
http://www.eui.eu/RSCAS/
Abstract

In this study we examine the integration of immigrants born in selected non-EU countries (China, Ecuador, India, Iran, Morocco, Tunisia, Turkey, Russia, Ukraine) living in France, Germany, Italy, Spain, Sweden and the UK. The units of analysis are the so-called migrant corridors, i.e. a migrant community x in a destination country y. A multidimensional perspective is adopted by focusing on their integration in the following three domains: labour market, education and access to citizenship. Our aim is to compare the level of integration of migrant corridors by dimension. Drawing on relevant micro-datasets, a set of basic integration indicators were identified for each dimension. Using the Principal Component Analysis technique, these basic indicators were synthesized into composite indicators, thus allowing for ranking migrant corridors both in terms of their absolute performances and compared with native outcomes.

Keywords: International Migration, Integration Index, Principal Component Analysis, Labour Market, Access to Citizenship, Education
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1. Introduction

Immigrant integration is one of the main challenges European societies have to face today. Successful integration has significant and positive implications not only for individuals and their personal autonomy, but also for society as a whole, in terms of social cohesion (OECD 2009). Given the constant need for migrants in today’s European labour markets (Fargues 2011), investing resources on the integration of migrants and on social cohesion would help with the creation of rationale admission policies that can be more easily accepted by European civil societies.

Integration is an inherently multidimensional phenomenon, with labour market and education representing two of its most relevant and interrelated domains. Better educated migrants are likely to be more productive and, in turn, better accepted by receiving societies. Moreover, for immigrants who frequently arrive in a new country with low skills, without an established family business, accumulated wealth or long-standing local social networks, the educational system represents a unique channel for social mobility and for success in the labour market (Di Bartolomeo and Strozza 2014). Another key dimension of integration is access to citizenship. Rapid and smooth naturalization might positively affect migrant integration both directly – through the expansion of the rights granted to foreign-born citizens – and indirectly, by enhancing their sense of belonging in the host society.

This paper aims at building-up composite indicators of integration that allow comparison for the level of integration of ‘specific group of migrants residing in selected EU Member States’ (migrant corridors). It does so in the following three key dimensions of integration: labour market, education and access to citizenship. For this purpose, the Principal Component Analysis technique is employed.

To date, few studies have approached the topic of migrant integration from a comparative perspective, i.e. using datasets that are standardized between European countries. Notable examples are the EUROSTAT report “Indicators of Immigrant Integration A Pilot Study” (EUROSTAT 2011) and the OECD publication “Settling In. OECD Indicators of Immigrant Integration 2012” (OECD 2012). This paper presents several innovative traits, not to be found in these previous papers. First, equal emphasis is put on both ends of migration, i.e. destination and origin. Accordingly, this paper measures the integration of migrant corridors, i.e. groups of migrants defined on the basis of both their country of origin and destination. More specifically, the migrant corridors on which this paper is based are the following:

<table>
<thead>
<tr>
<th></th>
<th>Turkey</th>
<th>Russia</th>
<th>Ukraine</th>
<th>Morocco</th>
<th>Tunisia</th>
<th>Ecuador</th>
<th>China</th>
<th>India</th>
<th>Iran</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Second, by building-up composite indicators, which allow for the ranking of the integration outcomes of migrant corridors by dimension, this study provides useful information for policy analysis and public dissemination.

2. Previous research

The economic and social integration of immigrants is a key policy challenge for all Western countries. This is witnessed by the growing number of policy oriented studies which have dealt with the theme in the last few years.

Since 2007 the OECD has been assessing the labour market integration of immigrants and their children through in-depth country reviews published in the series “Jobs for Immigrants”. The findings of these reports reveal that, in spite of the strong differences existing both among destination countries and between different immigrant groups, in almost all OECD countries the unemployment rate of immigrants is higher than that of the native-born. With regard to the causes of such an unfavourable inclusion, these studies clearly show that the observed differences between migrant and native labour market outcomes can only be partially attributed to immigrants’ lower qualifications (OECD 2009).

A key milestone in integration studies was posed by the Zaragoza Declaration (European ministerial conference on integration, 2010), which was adopted, April 2010, by the EU Ministers responsible for immigrant integration issues at the 4th European Ministerial Conference on Integration. The “Zaragoza Declaration” is – at the time of writing – the reference document concerning the key aspects of immigrants’ integration in the EU: dimensions, indicators, data sources, etc…. In the framework of this declaration, EUROSTAT drafted a key report which summarized the results of a pilot study whose aim was to identify to what extent existing harmonized data sources could provide adequate data on migrant populations (EUROSTAT 2011). Based on a variety of data sources, this study presents, for each Member State, a range of common indicators of migrants’ integration. These cover four policy areas: employment, education, social inclusion and active citizenship. Migrant population are described on the basis of both the country of origin criterion (foreign-born, EU born, non-EU born) and the country of citizenship principle (foreign nationals, EU citizens, third country nationals).

The multidimensional approach to integration introduced by the Zaragoza declaration was adopted, too, in 2012, by the OECD. Drawing on the data gathered for the “Jobs for Immigrants” series and other studies on integration, the OECD produced “Settling In: OECD Indicators of Immigrant Integration 2012”, i.e. the first international comparison across OECD countries of outcomes for immigrants and their children in economic and social integration. Three main findings emerge from this publication. First, outcomes differ considerably according to integration domain. Second, the composition of the immigrant population by reason for settlement, educational attainment and duration of stay is an important determinant of variations across countries. Third, the differences detected between immigrants and the native-born cannot be entirely attributed to observable socio-demographic variables, and the share that can be explained through such measurable factors varies according to the specific integration domain (OECD 2012).

Unlike the studies presented so far, the Migrant Integration Policy Index (MIPEX) (Huddleston et al. 2011) aims at assessing, comparing and improving integration policies. For present purposes the most relevant finding emerging from the MIPEX report is that there are strong positive statistical correlations between its different strands. Most countries that do well (or poorly) in one area of

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integration do well (or poorly) in the others. For instance, countries where immigrant adults can improve their careers, skills and qualifications are more likely to see and address their children’s specific needs and opportunities.

As compared with the studies revised in this section, this paper presents several innovative aspects. First, equal emphasis is put at both ends of migration, i.e. destination and origin. Indeed this paper measures the integration of migrant corridors, i.e. groups of migrants defined by their country of origin and destination. Second, this study proposes a revision of the indicators usually employed to assess migrants’ integration, which are critically assessed from both a theoretical and empirical perspective. Finally, by building-up composite indicators, which allows a ranking of the integration outcomes of migrant corridors by dimension, this study provides useful information for policy analysis and public dissemination.

3. Building up composite indicators of integration

Integration is a complex social phenomenon. This is, in part, because it concerns several life domains (labour market, education, etc.), but also because in order to measure each of these dimensions it is necessary to resort to a wide range of indicators. As a result, a comprehensive picture of integration levels in migrant corridors requires the use of composite indicators. In order to build indicators of this kind it is necessary to compile a single index of basic indicators with an underlying model (OECD 2008). A major advantage of using composite indicators is that, by summarizing complex realities into a single number, they can be interpreted more easily than a battery of several indicators. Conversely, their main drawback is that they may send misleading policy recommendations, when poorly constructed or misinterpreted (OECD 2008). Accordingly, in order to draw consistent and reliable policy conclusions from such indicators, their construction has to be rigorous and informed by both theoretical and technical considerations. Methods, data, reference population and definitions should also be clarified in detail.

In this paper, for each integration dimension, the construction of composite indicators involved the following two steps: 1) the definition and construction of basic indicators measuring each dimension of interest; 2) the aggregation of these basic indicators through the estimation of composite indicators assessing the level of integration of “a migrant community \( x \) in a destination country \( y \)” (migrant corridor) by dimension \( z \). The table below presents the set of indicators used to build the composite index in each dimension.

<table>
<thead>
<tr>
<th>The Set of Indicators used to Build the Composite Indexes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimension</td>
</tr>
<tr>
<td>Labour market integration index</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Education</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Citizenship</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
To address a crucial question – do basic indicators form a statistical coherent framework in order to correctly measure each dimension of interest? – it is necessary to verify whether all indicators within each dimension point in the same direction. For this purpose, basic indicators were first normalized and re-oriented in a coherent way. Then, their statistical coherence within each dimension was tested through correlation analysis.

When evaluating migrant integration outcomes across countries, it is, therefore, useful to compare migrants’ performances in the different life domains with those reported by the native-born population. Accordingly, for all indicators related to the labour and education domains “relative indicators” or “gap indexes” were produced. Gap indexes were obtained by computing the ratio between migrant and native values. Through relative indicators it is also possible to account for the selection of migrants by destination.

The two sets of basic indicators we built in the table above (absolute and relative indicators) were then aggregated into composite indicators. To build-up composite indicators, this paper makes use of the Principal Component Analysis (PCA). Specifically, it aggregates basic indicators using the weights estimated by means of PCA on each principal component. In lines with previous works (see e.g. Di Bartolomeo and Strozza 2014; Nicoletti, Scarpetta, and Boylaud 2000; Wenzel and Wolf 2013), each principal component (of integration) is weighted according to its contribution to the overall variance in the data. In so doing, this technique groups together basic collinear indicators to form a composite indicator that captures the biggest amount of information common to basic indicators (OECD 2008).

Three reasons make the PCA methodology particularly suitable for the measurement of migrants’ integration across corridors and across countries. First, it is data-based: i.e. the weights are neither equally set nor depend on subjective views of the phenomenon. As a result it allows for the construction of composite indicators without pre-empting the conclusions of the analysis. Second, it summarizes the basic indicators while preserving the maximum possible proportion of variation of original data. Third, it gives the largest weights to the indicators that have the largest variation across corridors, independently of prior views of their relative integration importance. Indicators that are similar across corridors are of little interest because they cannot explain differences in integration (Nicoletti et al. 2000) and are hardly susceptible to be politically addressed and modified.

The final result of the PCA consists of five composite indicators. These rank migrant corridor integration in three dimensions – labour market, education and access to citizenship – both in absolute and relative (i.e. compared with natives) terms.

4. Results

The PCA technique described in Section (3) provides two indexes which map the integration of migrants in the following dimensions: labour market, education and citizenship. The index – i.e. the absolute index – should be interpreted in the following way: the higher the index the better the integration of a certain corridor (origin-destination pair) as compared to others. The second index – i.e. the “gap index” – is calculated by taking into account migrants’ position with respect to the native population of their host country. The higher the gap index, the smaller the gap between immigrant and native performances in a certain country, relative to others. Being normalized, absolute and gap indexes rank the corridors according to their level of integration by assigning numbers from 0 to 1.

The obtained results should be interpreted taking into account the following aspects. First, due to information constraints, the set of countries of origin considered differs in terms of the countries of destination studied. Second, the ranking of integration level of different corridors is sensitive to the set of indicators considered in each dimension, hence one should always keep in mind the underlying information the synthetic index is built upon. Table 1 summarises the obtained results regarding the level of integration of considered migrant corridors in the three dimensions of interest.
Measuring Integration of Migrants: A Multivariate Approach

Table 1 Level of Integration

<table>
<thead>
<tr>
<th>Destination</th>
<th>Origin</th>
<th>Labour Market</th>
<th>Education</th>
<th>Access to citizenship</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Index (1)</td>
<td>Gap index (2)</td>
<td>Index (3)</td>
</tr>
<tr>
<td>Germany</td>
<td>Turkey</td>
<td>0.85</td>
<td>0.55</td>
<td>0.15</td>
</tr>
<tr>
<td>Germany</td>
<td>Russia</td>
<td>0.94</td>
<td>0.61</td>
<td>0.45</td>
</tr>
<tr>
<td>Spain</td>
<td>Morocco</td>
<td>0.00</td>
<td>0.37</td>
<td>0.14</td>
</tr>
<tr>
<td>Spain</td>
<td>Ecuador</td>
<td>0.39</td>
<td>0.71</td>
<td>0.27</td>
</tr>
<tr>
<td>France</td>
<td>Turkey</td>
<td>0.15</td>
<td>0.12</td>
<td>0.05</td>
</tr>
<tr>
<td>France</td>
<td>Tunisia</td>
<td>0.50</td>
<td>0.43</td>
<td>0.21</td>
</tr>
<tr>
<td>Italy</td>
<td>Ukraine</td>
<td>0.89</td>
<td>1.00</td>
<td>0.23</td>
</tr>
<tr>
<td>Italy</td>
<td>Morocco</td>
<td>0.79</td>
<td>0.87</td>
<td>0.00</td>
</tr>
<tr>
<td>UK</td>
<td>China</td>
<td>0.11</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>UK</td>
<td>India</td>
<td>1.00</td>
<td>0.77</td>
<td>0.61</td>
</tr>
<tr>
<td>Sweden</td>
<td>Iran</td>
<td>0.59</td>
<td>0.49</td>
<td>0.34</td>
</tr>
<tr>
<td>Sweden</td>
<td>Turkey</td>
<td>0.51</td>
<td>0.42</td>
<td>0.17</td>
</tr>
<tr>
<td>Belgium</td>
<td>Morocco</td>
<td>0.14</td>
<td>0.06</td>
<td>0.17</td>
</tr>
<tr>
<td>Belgium</td>
<td>Turkey</td>
<td>0.26</td>
<td>0.18</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Columns (1) and (2) of Table 1 summarize the results of PCA for the labor market dimension (the absolute and gap indexes respectively).

Figures reported in the table above point to the fact that both origin and destination are important factors. They define the position of migrant corridors along the distribution of labor market integration index. According to the absolute indicator based analysis the worst and the best integrated corridors are, respectively, Moroccans in Spain and Indians in the UK. Migrants from India, Ukraine and Russia are among the best integrated in the labour markets of destination countries. Migrants from these countries of origin are almost exclusively labour migrants. 66 percent of first residence permits issued in EU 28 countries for Ukrainian citizens were for “remunerated activities”. The corresponding values are smaller for Indians (33 percent), but still higher than the average for the origin countries considered\(^2\). The active labour market participation of these migrants groups is, though, accompanied by extremely high over-qualification rates. Looking at the opposite end of the distribution, it is possible to notice that corridors including Turkish, Moroccans and Tunisian migrants appear below the median of the gap index in almost all destination countries.

Some insights come from comparing corridors belonging to the same destination or to the same origin countries. For example, Turkish and Iranian migrants in Sweden have similar ranking; they are in the middle of the absolute index distribution and well below it when the deviation from natives is considered. Moreover, the unemployment rate of both groups is considerably higher than native unemployment: 15.4 percent and 15.6 percent for Turkish and Iranian migrants respectively, 4.3 percent for native Swedes. However, the drivers for such poor integration are different for the two groups. A relatively low level of education can explain the low level of integration of Turkish migrants. But it cannot justify the poor performances of Iranians. Indeed, the latter have the highest share of tertiary educated in Sweden, thus outperforming even native Swedes. According to Kelly

\(^2\) The reported estimates refer to the period 2008-2013 and are based on Eurostat statistics on first permits by reason.
many tertiary educated Iranians living in Sweden prefer to rely on the generosity of the Swedish welfare system, rather than accepting low-skilled jobs.

Integration patterns detected in the education dimension are similar to those observed in the labour market domain. Education performances of migrants from China and India are close to those of natives, while the biggest gaps are found for migrants coming from Turkey, Morocco and Tunisia. The destination countries where the gap between migrants and natives is the narrowest is in the UK. Instead, the widest gap is observed in Italy and Spain.

In order to interpret the results shown in Column (3) and (4) correctly the set of indicators used to develop the composite education indexes should be kept in mind. Two out of the four indicators used refer to enrolment status and one to the share of international students. The focus of the composite index is, therefore, on migrants’ enrolment rate rather than on their educational achievements. The relatively good performances of UK related corridors are driven by high enrolment rates and by the high share of international students. 74 percent of residence permits issued in UK from 2010 to 2012 were granted for education reasons. Such a high figure can be driven by different factors. First, the British system of education relies heavily on international students. The tuition fees paid by the latter are an important source of revenue for British universities. Second, the recent development in the UK labour migration policies made the entrance through working visas more challenging. As a result some potential labour migrants may have decided to enter the labour market through educational institutions. For example, in 2006 the UK government removed general nurses from the government’s shortage occupation list, but nurses from the Philippines and India continued arriving in the UK as students, with the intention of working later (Calenda 2014).

Acquisition of citizenship is frequently used as measure of integration. It is considered as an important step in the integration of migrants in host society. However, it is also a tool enabling further integration as it gives migrants wider civic rights in the destination country, including the possibility of being politically active: to elect and to be elected.

The results reported in Column (5) of Table 1 present the ranking of corridors in terms of citizenship acquisition. The synthetic index is based on two indicators representing stock (the percentage of naturalized citizens out of the total born abroad population) and flow (citizenship acquisition rate) dynamics of naturalization. The results of PCA reveal that the obtained ranking is mainly driven by the following factors: legislation on naturalization (including repatriation programs), colonial ties and the duration stay of the migrant group. Relatively relaxed naturalization regimes in the UK, Belgium and France moved the related corridors to the right wing of distribution. One of the eligibility criteria for obtaining citizenship is duration of stay in the destination country. Hence, countries with a long history of migration to Europe have relatively big stocks of migrants who have become citizens of their host countries. The only exception is represented by the Turks in Germany who, in spite of their long standing presence in the country, acquired the opportunity to apply for citizenship only recently. Corridors that are subject to special repatriation programs (Ecuadorians in Spain, ethnic Germans from Russia in Germany) are well integrated in citizenship terms due to the simplified naturalization procedures from which they benefit.

5. Conclusions and further direction of research

This study has compared the integration outcomes of a number of migrant corridors – i.e. groups of migrants defined on the basis of both their origin and destination countries – across three key dimensions of integration, namely, labour market, education and access to citizenship. This has been done by applying Principal Component Analysis, a multivariate statistical technique that allows the building-up of synthetic indexes of integration on the basis of basic indicators of integration, with a minimum loss of information.
This paper offers a key contribution to the literature about migrants’ integration for three main reasons.

First it puts equal emphasis on both ends of migration, i.e. destination and origin. It does so, by comparing the level of integration of migrants born in different countries, but residing in the same host country. This article, in fact, points to the key role played by factors related to migrants’ country of origin in shaping integration outcomes and to the fact that the impact of these factors varies according to the considered dimension of integration. But it also compares the performances of migrants sharing the same country of origin but living in different destination countries. This study, in fact, confirms that migrant integration processes are considerably affected by host country related factors. Among such factors, this study considers not only those more strictly connected to the host country approach towards migrants, but also those related to its socio-economic characteristics and conditions. The latter aspect is factored in by benchmarking migrant outcomes with the performances of the native population. Second, the present paper proposes an empirically and theoretically driven critical revision of the indicators employed by the literature on this topic to assess migrants’ integration. Third, by building-up synthetic composite indicators, which allows a ranking of the integration outcomes of migrant corridors by dimension, this study provides useful information for policy analysis and public dissemination.
References


