MIGRATION POLICY GROUP

MPG Research Paper

Exploiting EU integration indicators at infra-national level

How are national-level integration policies associated with integration outcomes?

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January 2022

URBAN AGENDA FOR THE EU

MIGRATION POLICY GROUP

Exploiting EU integration indicators at infra-national level: how are national-level integration policies associated with integration outcomes?

Pilot Report: Targeted Technical Support to Implementation of Action 'Facilitating Evidence-Based Integration Policies in Cities'

Urban Agenda for the EU Partnership on Inclusion of Migrants and Refugees

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To cite: De Coninck D., Solano G., Van Doren S. (2022), *Exploiting EU integration indicators at infra-national level: how are national-level integration policies associated with integration outcomes?*, Report for the Urban Agenda action 'Facilitating Evidence-Based Integration Policies in Cities', Brussels: Migration Policy Group.

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1. Introduction and objective

Rationale of the study

- Eurostat publication of existing EU integration indicators on regional level.
- Exploiting newly available comparative data on infra-national level.
- Understanding how EU regions (NUTS-2) differ concerning integration outcomes of migrants.
- Exploring how national-level integration policies influence the migrants' integration outcomes at the regional level.
- Identifying meaningful groups/situation of NUTS2 regions - learn more easily from those that
  are more similar.
- Closer similarity may show regions how to achieve the changes they seek in the most efficient way.

In this report, we build on previous insights regarding the integration of migrants at the urban-regional level. As highlighted in the previous report,[1] Eurostat has collected data on various (non-) EU-28 migrant integration indices at the NUTS-2 level and by 'degree of urbanisation' (cities, towns and suburbs, rural areas). This is particularly important as integration is often a process that takes place at the regional level rather than the national level. Nonetheless, most contemporary empirical evidence regarding migrant integration utilizes data at the national level. In this regard, the importance of Eurostat's efforts to disseminate data at the NUTS-2 level cannot be underestimated. The feasibility testing has resulted in the recent publication of new indicators for most classic and robust indicators as part of the Eurostat migrant integration database (employment regional series). Activity rate, employment rate, unemployment rate are now available to be disaggregated by country of birth and country of citizenship at the regional level (NUTS-2) and by degree of urbanisation (cities, towns and suburbs, rural areas).

The second phase of the data feasibility regarding a new regional education series resulted in the publication of the infra-national statistics for educational attainment and young people neither in employment nor in education or training (NEET) that are now available to be disaggregated by country of birth and country of citizenship at regional level (NUTS-2) and by degree of urbanisation. Since the publication of the Options Report of the Action's Stakeholder Working Group, Eurostat has continued feasibility testing, which has resulted in the publication of LFS-based demographic data on the regional level.

Building on the analyses in the previous report,[2] the findings presented here are a second step to showcasing the newly available comparative data on infra-national level, in making meaningful comparisons in education and labour market integration outcomes across cities and regions. The overall aim of this exercise is to understand how EU regions (NUTS-2) differ concerning integration outcomes of migrants, and how certain characteristics and national-level integration policies influence the migrants' integration outcomes at the regional level. We will also provide an extra layer of comparison to the findings in this report, and will make a distinction between two migrant groups: EU-28 migrants and non-EU-28 migrants. These two groups will be compared with each other and with natives of the reporting countries.

In this study, we will both revise the classification of NUTS-2 regions based on integration outcomes and continue to use the classification of NUTS-2 regions based on their

[1] Joki A.-L. (2020), Exploiting EU integration indicators at infra-national level: Which regions are comparable?, Pilot Report: Targeted Technical Support to Implementation of Action 'Facilitating Evidence-Based Integration Policies in Cities', Urban Agenda, Brussels.

[2] Joki A.-L. (2020), Exploiting EU integration indicators at infra-national level: Which regions are comparable?.

characteristics, which were constructed by previous pilot study.[3] They provide optimal groups of similar units allowing NUTS-2 regions within clusters to learn more easily from those that are more similar. The NUTS-2 region clusters are 'taxonomized' by combining information about the clustering variables with the dynamics of the clustering variables across different clusters. Subsequently, we conduct ANOVA and t-tests to assess if and how much activity, employment, and education rates differ between different migrant groups and natives. Finally, multilevel regression analysis is performed in order to explore which regional and national integration policy indicators best explain integration outcome differences between the NUTS-2 regions and clusters.

All integration outcome variables and regional characteristics included in the analysis are described in Section 2 with an assessment of the availability. In Section 3, the methodological approaches for the analyses are presented. Section 4 examines the results for each approach and some concluding remarks are provided in Section 5.

2. Data and variables

The main data source for comparable educational attainment and employment statistics is the EU labour force survey (LFS), which is a large quarterly sample survey that covers the resident population aged 15 and above in private households. Migrant indicators are calculated for two broad groups: the foreign population determined by country of birth and the foreign population determined by citizenship. In this report we highlight the findings for the latter group, but all analyses have been conducted for both broad groups with little to no differences in findings.

All indicators are considered at NUTS-2 level in line with Regulation (EU) 2016/2066 amending annexes to NUTS Regulation 1059/2003, meaning 281 NUTS-2 regions were included in the analysis. It should also be noted that some EU Member States have a relatively small population and may therefore not be subdivided at some (or even all) of the different levels of the NUTS classification. For example, five of the Member States — Estonia, Cyprus, Latvia, Luxembourg and Malta — are each composed of a single NUTS level 2 region according to the 2016 version of the NUTS classification.

2.1. Integration indicators at NUTS-2-level

The integration indicators that are included in the current study are three of the official education and employment 'Zaragoza' integration indicators: activity rate, employment rate, and share of tertiary educated. These have been widely used to identify successes or challenges in the process of immigrant integration at the national level. These outcomes and indicators have been chosen to allow for comparability across EU member states. Although the previous study[4] also included information on the unemployment rate and the share of NEETs, these were omitted in the current study due to a large amount of missing data at the NUTS-2 level for EU28-migrants and non-EU-28 migrants. This highlights a critical gap in these NUTS-2 data. While it is important for policy makers to have information at this level, information on unemployment and NEETs is missing – but likely not at random. Particularly in Eastern European countries (e.g., Romania, Bulgaria), data on these integration indicators at the NUTS-2 level is lacking. Making further efforts to collect data in all countries would provide a large benefit for policy makers in these regions. This was also acknowledged in the previous report: "While this [using NEET and unemployment rate] has a significant effect on the sample size (N=58), the assumption that data is missing at random and thereby to cluster the complete set of NUTS-2 regions, on the basis of the data that is available, cannot be made".

[3] Joki A.-L. (2020), Exploiting EU integration indicators at infra-national level: Which regions are comparable?.
[4] Joki A.-L. (2020), Exploiting EU integration indicators at infra-national level: Which regions are comparable?.

Rather than using the overall rate of activity, employment, of tertiary education rate of migrants, we calculated the gap in rates between three groups: between EU-28 migrants and non-EU-28 migrants, between EU-28 migrants and natives, and between non-EU-28 migrants and natives.

Gap EU-28 migrants and non-EU-28 migrants. In order to calculate this gap, the rate of the integration indicator for EU-28 migrants was subtracted from the rate of non-EU-28 migrants. For example, if the activity rate of EU-28 migrants was 65% and of non-EU-28 migrants was 55%, the gap would be -10%. Thus, a positive score indicates that non-EU-28 migrants have better integration outcomes than EU-28 migrants. A negative score indicates that EU-28 migrants have better integration outcomes than non-EU-28 migrants.

Gap EU-28 migrants and natives. In order to calculate this gap, the rate of the integration indicator for was natives subtracted from the rate of EU-28 migrants. For example, if the activity rate of EU-28 migrants was 65% and of natives was 80%, the gap would be 15%. Thus, a positive score indicates that EU-28 migrants have better integration outcomes than natives. A negative score indicates that natives have better integration outcomes than EU-28 migrants.

Gap non-EU-28 migrants and natives. In order to calculate this gap, the rate of the integration indicator for was natives subtracted from the rate of non-EU-28 migrants. For example, if the activity rate of non-EU-28 migrants was 45% and of natives was 80%, the gap would be 35%. Thus, a positive score indicates that non-EU-28 migrants have better integration outcomes than natives. A negative score indicates that natives have better integration outcomes than non-EU-28 migrants.

The age categories applied in this report are in line with those employed by the EC for dissemination of integration indicators. The operationalisation of activity rate, employment rate, and share of tertiary educated did not change from the previous report. The only difference is that now, data from 2019 were used. Similarly, the operationalisation of the NUTS-2 control variables did not change either.

1. Activity rate

Activity rate is defined as the percentage of the population in a given age group who are economically active. According to the definitions of the
International Labour Organisation (ILO) people are classified as employed, unemployed and economically inactive for the purposes of labour market statistics. The economically active population (also called labour force) is the sum of employed and unemployed persons. Inactive persons are those who, during the reference week, were neither employed nor unemployed.
Age: 20-64. Year: 2019. Data source: EU Labour Force Survey.

2. Employment rate

The employment rate is calculated by dividing the number of persons aged 20 to 64 in employment by the total population of the same age group. Employed population consists of those persons who during the reference week did any work for pay or profit for at least one hour, or were not working but had jobs from which they were temporarily absent.
Age: 20-64. Year: 2019. Data source: EU Labour Force Survey.

3. Share of tertiary educated

The indicator is defined as the percentage of the population aged 30-34 who have successfully completed tertiary studies (e.g. university, higher technical institution, etc.). This educational attainment refers to ISCED (International Standard Classification of Education) 2011 level 5-8 for data from 2014 onwards and to ISCED 1997 level 5-6 for data up to 2013.
Age: 30-34. Year: 2019. Data source: EU Labour Force Survey.

2.2. NUTS-2 descriptive variables

2.2.1 Regional typology

NUTS-2 regions have been classified into 'predominantly urban', 'intermediate', and 'predominantly rural' to take into account geographical differences among them. [5] The OECD regional typology is applied and it is based on criteria of population density. The first step of the methodology consists in classifying each NUTS-3 as rural if their population density is below 150 inhabitants per square kilometre. The second step consists in aggregating this lower level (NUTS-3) into NUTS-2 regions and classifying the latter as "predominantly urban", "intermediate" and "predominantly rural" using the percentage of population living in rural lower level units (local units with a population density below 150 inhabitants per square kilometre). NUTS-2 regions are then classified as:

- Predominantly Urban (PU), if the share of population living in rural local units is below 15%;
- Intermediate (IN), if the share of population living in rural local units is between 15% and 50%;
- Predominantly Rural (PR), if the share of population living in rural local units is higher than 50%.

Results from this classification are presented in Table 1.

Table 1. NUTS-2 classification by urban/rural predominance

Classification	Frequency (number of NUTS-2 regions)	Percentage
1: Predominantly urban	99	35.2
2: Intermediate region	45	16.0
3: Predominantly rural	137	48.8
Total	**281**	

2.2.2 Regional gross domestic product (PPS per inhabitant in % of the EU-28 average)

GDP (gross domestic product) is an indicator of the output of a region. It reflects the total value of all goods and services produced less the value of goods and services used for intermediate consumption in their production. Expressing GDP in PPS (purchasing power standards) eliminates differences in price levels between countries. Calculations on a per inhabitant basis allow for the comparison of economies and regions significantly different in absolute size. GDP per inhabitant in PPS is the key variable for determining the eligibility of NUTS-2 regions in the framework of the European Union's structural policy. Year: 2016-2017.

2.2.3 Net migration

Crude rate of net migration including statistical adjustment is the ratio of the net migration including statistical adjustment during the year to the average population in that year. The value is expressed per 1000 inhabitants. The crude rate of net migration is equal to the

[5] See also: Joki A.-L. (2020), Exploiting EU integration indicators at infra-national level: Which regions are comparable?.

difference between the crude rate of population change and the crude rate of natural change (that is, net migration is considered as the part of population change not attributable to births and deaths). It is calculated in this way because immigration or emigration flows are either not available or the figures are not reliable.
Year: average 2016-2017.

2.2.4 Population size

Population on 1 January should be based on concept of usual resident population, i.e. the number of inhabitants of a given area on 1 January of the year in question (or, in some cases, on 31 December of the previous year). The population figures can be based on data from the most recent census adjusted by the components of population change produced since the last census, or based on population registers.
Year: average 2016-2018.

2.2.5 Foreign-born population

This indicator is measured as a percentage of population. The foreign-born population covers all people who have ever migrated from their country of birth to their current country of residence. The foreign-born population captured in this indicator include people born abroad as nationals of their current country of residence.
Year: Average 2016-2018. (Exceptions: PL22 2017-2018, PL42 2018, PL61 2018, PL71 2017-2018, PL81 2017, RO32 2017-2018).
*Note: This indicator is calculated for the age group 15-64. The reason for this is that population data disaggregated by Country of Birth at NUTS-2 is only available for the age-group specified.

2.2.6 Regional Competitiveness Index (RCI)

The EU Regional Competitiveness Index (RCI) is the first composite indicator which provides a synthetic picture of territorial competitiveness for each of the NUTS 2 regions of the 28 EU Member States. The definition of competitiveness used by the EC for RCI ('the ability of a region to offer an attractive and sustainable environment for firms and residents to live and work') takes into account both business success and personal well-being. The RCI is based on the methodology developed by the World Economic Forum. The indicators are followed within 11 pillars that describe both inputs and outputs of territorial competitiveness. The 11 pillars are grouped into three sub-indices, which are basic (five pillars), efficiency (three pillars), and innovative (three pillars) factors of competitiveness.
Year: RCI values are published at three-year intervals however, it should be noted that a number of indicators differ across RCI editions 2010, 2013, 2016 and 2019. For the purpose of this research we use data published in 2019.

2.3. Integration policy indicators

We used recent data from the Migrant Integration Policy Index (MIPEX) to assess migrant integration policies in 2017. MIPEX is a country-level index of migrant integration policies that simultaneously considers 50+ policy indicators from eight policy domains (healthcare, education, political participation, labour market mobility, anti-discrimination, permanent residence, access to nationality, family reunion).

MIPEX is a unique tool which measures policies to integrate migrants in countries across five continents, including all EU Member States (including the UK), and other European and non-European countries.
Policy indicators have been developed to create a rich, multi-dimensional picture of migrants' opportunities to participate in society.

In the fifth edition, a core set of indicators has been created that have been updated for the period 2014-2019. Thus, MIPEX now covers the period 2007-2019. The index is a useful tool to evaluate and compare what governments are doing to promote the integration of migrants in all the countries analysed. The project informs and engages key policy actors about how to use indicators to improve integration governance and policy effectiveness. To that end, the project identifies and measures integration policies and identifies the links between integration policies, outcomes and public opinion, drawing on international scientific studies. Thanks to the relevance and rigor of its indicators, the MIPEX has been recognised as a common quick reference guide across Europe. Policymakers, NGOs, researchers, and European and international institutions are using its data not only to understand and compare national integration policies, but also to improve standards for equal treatment.

MIPEX score is based on a set of indicators covering eight policy areas that has been designed to benchmark current laws and policies against the highest standards through consultations with top scholars and institutions using and conducting comparative research in their area of expertise. A policy indicator is a question relating to a specific policy component of one of the eight policy areas. For each answer, there are a set of options with associated values (from 0 to 100, e.g., 0-50-100). The maximum of 100 is awarded when policies meet the highest standards for equal treatment. Scores range from 0 (critically unfavourable policies) to 100 (the best possible integration policies). Within each of the eight policy areas, the indicator scores are averaged together to give the policy area score for each of the eight policy areas per country which, averaged together one more time, lead to the overall scores for each country. Aside from using the aggregated MIPEX policy score, we will also consider two relevant integration policy strands: labour market mobility and education. In this paper, we will focus on the EU countries.

We used data from 2017 despite the fact that data from more recent years (up until 2019) is available because previous research shows that there is a certain lag between the time when policies take effect and when outcomes of these policies can be measured (Bellemare et al. 2017; Bakker and van Vliet 2021; Solano and Huddleston 2020). Thus, rather than using 2019 data to relate to integration outcomes in 2019, we selected the integration policy data from 2017 to relate to integration outcomes of 2019. Furthermore, we will also calculate to what extent policies have changed between 2014 and 2017, by subtracting the overall 2014 MIPEX score from the overall 2017 MIPEX score. A positive score means that integration policies have become more favourable, while a negative score indicates that integration policies have become less favourable.

3. Methodology

Prior to focusing on the gap-variables based on activity, employment and tertiary education rate, we will re-introduce the clusters that were developed in the previous study based on integration outcomes.[6] While previous study employed activity rate, employment rate, unemployment rate, NEET, share of tertiary educated, given the high number of missing regions, we decided to focus on the variables with less missing data, namely activity rate, employment rate, share of tertiary educated. We also believe that rather than focusing on the rate, it is more accurate to analyse the gaps between different migrant groups, or between migrant groups and natives. Therefore, we used the following variables to create the new groups of regions, based on their integration outcomes: the gap between EU-28 and non-EU-28 migrants, between EU-28 migrants and natives, and between non-EU-28 migrants and natives – each time for activity rate, employment rate, and share of tertiary educated. This allowed us to keep 166 regions instead of the 58 from Joki. [7]

[6] Joki A.-L. (2020), Exploiting EU integration indicators at infra-national level: Which regions are comparable?.
[7] Joki A.-L. (2020), Exploiting EU integration indicators at infra-national level: Which regions are comparable?.

We also kept the grouping of regions based on the NUTS-2 regional characteristics (Regional typology (PU/IN/PR), GDP, Net migration, Population size, Foreign-born population, Regional Competitiveness Index (RCI), as done by Joki.[8]

Subsequently, we conducted ANOVA and t-tests to assess whether and how much the different gap variables differ significantly between regional characteristics and between clusters (based on the regional characteristics). The ANOVA was necessary for the regional characteristics (given the factor variable has three categories), while the t-tests apply to the cluster analysis (as this is a dichotomous indicator).

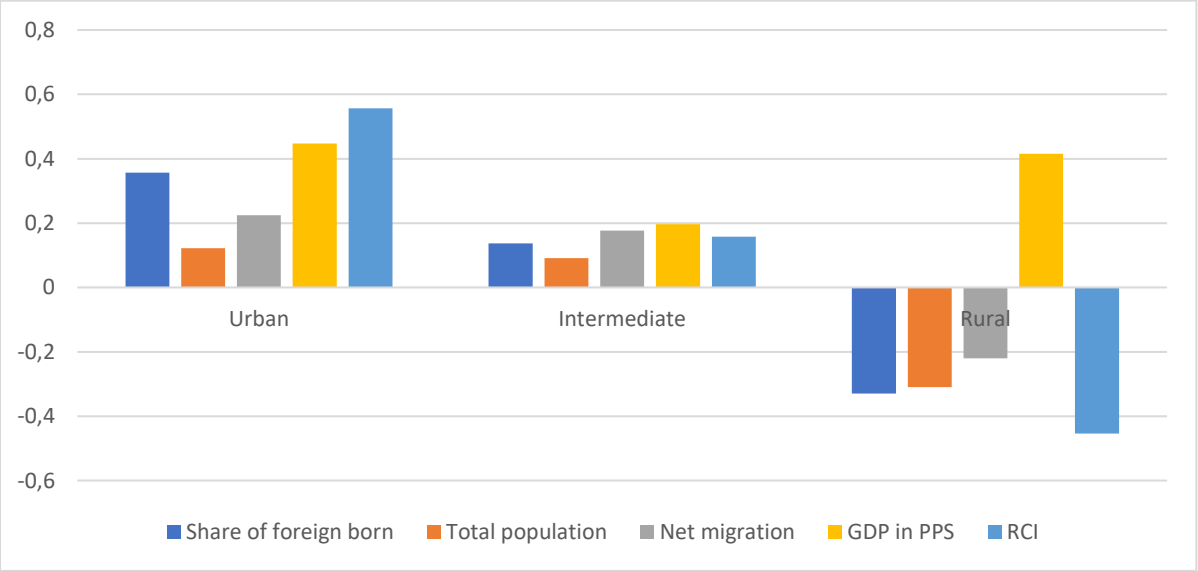
In a third and final step, we conducted a multilevel analysis with the integration outcomes as dependent variables, and with integration policy indicators and NUTS-2 variables as independent variables. We split these multilevel analyses by cluster.

4. Results

4.1. Regional characteristics and degree of urbanisation

As an exploratory analysis, we first present the distribution of the NUTS-2 regional characteristics by degree of urbanisation (Figure 1). As indicated by Figure 1, urban regions are characterised by a high degree of RCI and share of foreign-born especially, while rural regions present the opposite trend. Intermediate regions take up a central position in this regard. As for net migration, both urban and intermediate regions have similar net migration rates, while rural regions have markedly lower rates. GDP in PPS is high in both urban and rural regions, but lower in intermediate regions. The population number is above the grand mean in both urban and intermediate regions, but much lower in rural regions – as is expected.

Figure 1. Descriptive comparison of NUTS-2 characteristics by regional typology



[8] Joki A.-L. (2020), Exploiting EU integration indicators at infra-national level: Which regions are comparable?.

4.2. Groups of regions (NUTS-2) based on integration gaps

We now re-introduce the clusters that were developed in the previous study based on integration outcomes.[9] While previous study employed activity rate, employment rate, unemployment rate, NEET, and share of tertiary educated, given the high number of missing regions, we decided to focus on the variables with less missing data: activity rate, employment rate, share of tertiary educated. We also think that instead of focusing on rate, it is more accurate to analyse the gaps (between natives and EU and non-EU migrants). Therefore, we use the following variables to create the new groups of regions, based on their integration outcomes: the gap between EU-28 and non-EU-28 migrants, between EU-28 migrants and natives, and between non-EU-28 migrants and natives – each time for activity rate, employment rate, and share of tertiary educated.

Several models are run in order to obtain the most meaningful number of clusters based on integration outcomes. Evaluation of the model specifications pleads for 2 meaningful clusters of NUTS-2 regions (see section below). In the following section, we report the output obtained with K-Means clustering, which accounts for 2 clusters based on the outcomes indicators.

Figure 2 and Table 2 show final cluster centres, representing the average in each cluster. At first glance we observe that, generally speaking, the largest gaps between foreign nationals (EU & TCN) and nationals are found in Cluster 2 and that the largest gaps between EU28-nationals and TCNs are found in Cluster 1.

Cluster 1 is characterised by more favourable integration outcomes for non-EU-28 migrants (versus both EU-28 migrants and natives) in all three integration outcomes under consideration. Non-EU-28 migrants in this cluster region have favourable or less unfavourable (compared to Cluster 2) integration outcomes (versus both EU-28 migrants and natives) in all three integration outcomes. Furthermore, this cluster is characterised by more favourable outcomes for EU-28 migrants as opposed to natives (compared to the situation of regions in Cluster 2). An example of NUTS-2 regions or cities that belong to Cluster 1 include, among others: Porto, Braga, London, Napoli, Rome, Dublin.

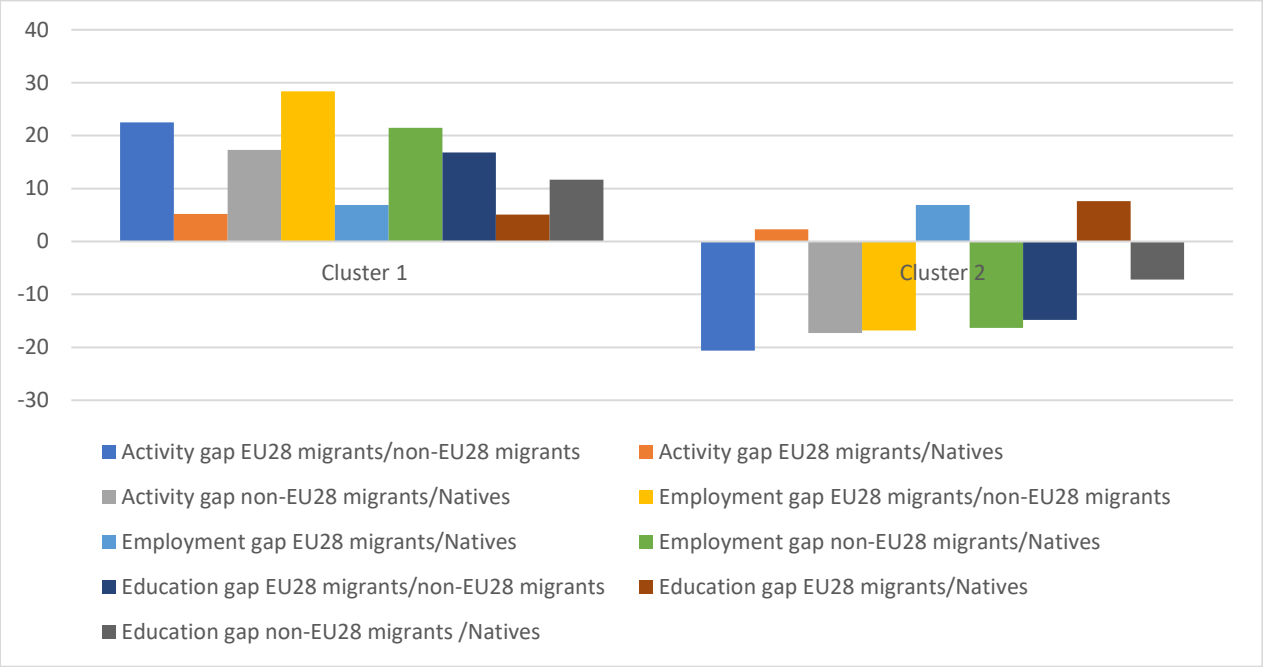
Cluster 2 presents a different picture: non-EU-28 migrants have far worse integration outcomes than natives and EU-28 migrants in this cluster, in all three integration outcomes under consideration. It is interesting to notice that EU-28 migrants have also more favourable outcomes in terms of education gap for EU-28 migrants (as opposed to natives), while they fall behind natives on activity and employment rate. An example of NUTS-2 regions or cities that belong to Cluster 2 include Brussels, Antwerp, Copenhagen, Berlin, Catalonia, Madrid, South Holland, Stockholm, South Sweden.

Table 2. Final cluster centres

Integration outcomes	Cluster 1 (n = 64)	Cluster 2 (n = 134)
Activity gap EU28 migrants/non-EU28 migrants	22.50	-20.60
Activity gap EU28 migrants/Natives	5.20	2.30
Activity gap non-EU28 migrants/Natives	17.30	-17.30
Employment gap EU28 migrants/non-EU28 migrants	28.40	-16.80
Employment gap EU28 migrants/Natives	6.90	6.90
Employment gap non-EU28 migrants/Natives	21.50	-16.30
Education gap EU28 migrants/non-EU28 migrants	16.80	-14.80
Education gap EU28 migrants/Natives	5.10	7.60
Education gap non-EU28 migrants /Natives	11.70	-7.20

[9] Joki A.-L. (2020), Exploiting EU integration indicators at infra-national level: Which regions are comparable?.

Figure 2. Integration outcome centres by cluster



Note:

- *Gap EU-28 migrants and non-EU-28 migrants*. A positive score indicates that non-EU-28 migrants have on average better integration outcomes than EU-28 migrants in the regions included in the cluster. A negative score indicates that EU-28 migrants have better integration outcomes than non-EU-28 migrants.
- *Gap EU-28 migrants and natives*. A positive score indicates that EU-28 migrants have on average better integration outcomes than natives. A negative score indicates that natives have better integration outcomes than EU-28 migrants in the regions included in the cluster.
- *Gap non-EU-28 migrants and natives*. A positive score indicates that non-EU-28 migrants have on average better integration outcomes than natives in the regions included in the cluster. A negative score indicates that natives have better integration outcomes than non-EU-28 migrants.

4.3. Groups of regions (NUTS-2) based on regional characteristics

Replicating the analysis by Joki, [10] the set of variables that we consider in this analysis includes five quantitative variables (GDP in PPS, net migration, population size, share of foreign born, and RCI). The traditional cluster analysis is only feasible with quantitative variables, since they are based on the calculation of a distance matrix.

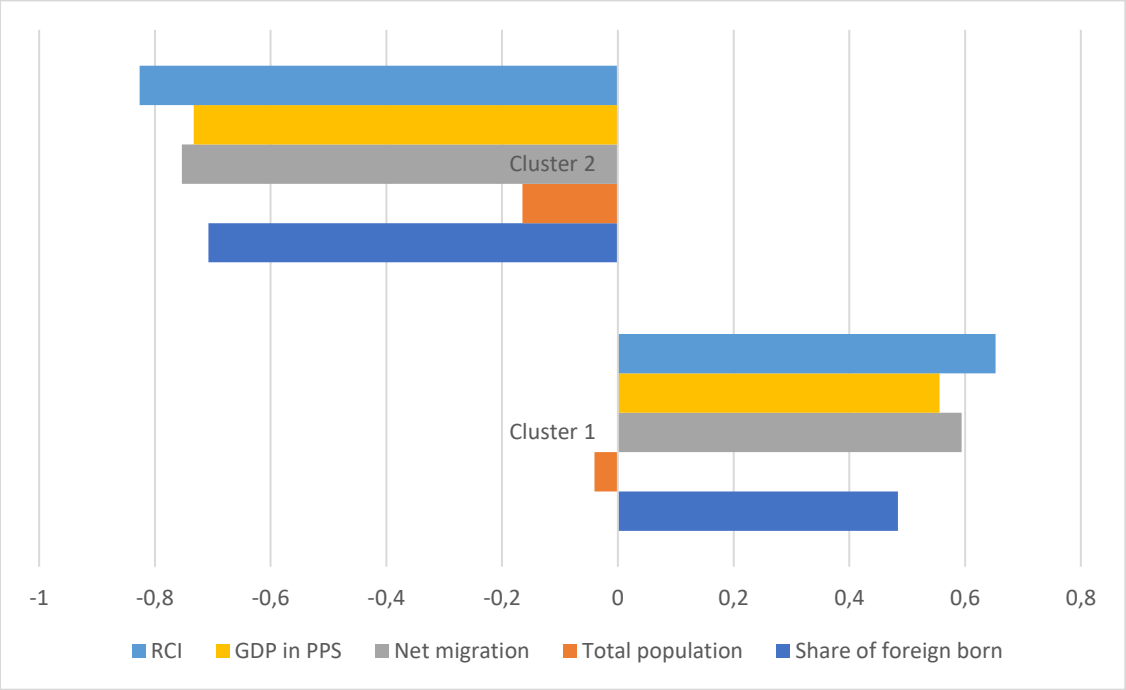
In the following figure and table, we report the output obtained with K-Means clustering, which accounts for two clusters. This algorithm assigns cases to clusters based on the smallest amount of distance between the cluster mean and each case. This is an iterative process that stops once the cluster means do not significantly change in successive steps. The output of K-Means is provided in the following figure.

Table 3. Final cluster centres

Regional characteristics	Cluster 1 (n = 157)	Cluster 2 (n = 124)
GDP in PPS	0.56	-0.73
Net migration rate	0.59	-0.75
Total population	-0.04	-0.17
Share of foreign born	0.48	-0.71
RCI	0.65	-0.83

[10] Joki A.-L. (2020), Exploiting EU integration indicators at infra-national level: Which regions are comparable?.

Figure 3. Clusters based on regional characteristics



Cluster 1 is characterised by a high regional GDP in PPS and RCI. This indicates that this cluster mostly consists of relatively wealthy regions that provide an attractive environment for residents to work in. Furthermore, this cluster has a high degree of net migration and a large share of foreign born, meaning that they are likely to be ethnically and culturally diverse. As for the population number, this revolves around the grand mean, meaning that both highly populated and more scarcely populated regions can be found here. The overall conclusion regarding Cluster 1 does indicate that mostly urban regions can be found here, given the high degree of competitiveness and diversity.

An example of NUTS-2 regions that belong to Cluster 1 include, among others: Vienna, Brussels, Antwerp, Upper Bavaria, Berlin, Catalonia, North Holland, South Holland, Stockholm, South Sweden.

Cluster 2 presents the opposite picture: a relatively low GDP in PPS and RCI, coupled with low net migration rates and share of foreign born. The population rate is also lower. Based on these results, it can be assumed that more rural and intermediate regions can be found in this cluster.

An example of NUTS-2 regions that belong to Cluster 2 include, among others: Cyprus, Canary Islands, Southern Ireland, East and Midland Ireland, Malta, West Midlands, Inner London-East, Outer London East and North East & West and North West (UK).

Table 4. Clusters by regional characteristics

Classification	Cluster 1		Cluster 2	
	Frequency	Percentage	Frequency	Percentage
Predominantly rural	42	27	95	77
Intermediate region	31	20	14	11
Predominantly urban	84	54	15	12
Total	157	100	124	100

To finalise this descriptive overview, we present Table 4 in which the distribution of rural/intermediate/urban regions by clusters is shown. Based on a test of association, Kendall's tau-b correlation coefficient confirms that there is a significant and moderate association between the clusters and regional typology (τ_b = -0.48, $p < 0.001$). Based on the above table, this is not entirely unexpected – rural regions clearly appear more frequently in Cluster 2, while urban regions make up the majority of Cluster 1.

4.4. A typology of regions

We now combine the results of the two grouping processes (the one based on integration outcomes and the one based on regional characteristics). Based on this combination, regions can be categorised in four different situations:

A – High-competitive and diverse mostly urban regions where non-EU migrants tend to be more educated and active in the labour market than natives (or less disadvantaged compared regions in other situations). Examples of these regions are: Dublin, Malta, Luxembourg, London, Nuremberg, Cyprus.

B – Low-competitive and non-diverse mostly rural regions where non-EU migrants tend to be more educated and active in the labour market than natives (or less disadvantaged compared to regions in other situations). Examples of these regions are: southern Czech Republic, all NUTS2-regions in Estonia, northern Spain, southern Italy.

C – High-competitive and diverse mostly urban regions where non-EU migrants tend to be less educated and active in the labour market than natives. Examples of these regions are: Prague, Budapest, northern Italy, all NUTS- regions in Austria, Denmark, Netherlands.

D – Low-competitive and non-diverse mostly rural regions where non-EU migrants tend to be less educated and active in the labour market than natives. Examples of these regions are: northern Greece, central and north-east Spain, northern Croatia, southern Croatia, eastern France.

As it is possible to see from Table 5, most of the regions fall into the situation C, in which non-EU migrants fall behind the natives. The row percentages however show that high-competitive and diverse urban regions (compared to low-competitive and non-diverse rural regions) are more likely to have non-EU migrants that fall behind the natives in both the labour market and in education. This is statistically significant, as confirmed by the Kendall's tau-b correlation coefficient (τ_b =-0.181, $p < 0.03$).

Table 5. A typology of regions based on their integration outcomes and regional characteristics.

		Grouping based on integration outcomes		
		Cluster 1	**Cluster 2**	
Grouping based on regional characteristics		*Non-EU migrants are more educated and active in the labour market than natives*	*Non-EU migrants are less educated and active in the labour market than natives*	**Total**
Cluster 1	*High-competitive and diverse urban regions*	**A** - 39 (20%) (row percentage: 27%)	**C** - 107 (54%) (row percentage: 73%)	146
Cluster 2	*Low-competitive and non-diverse rural regions*	**B**- 23 (12%) (row percentage: 46%)	**D**- 27 (14%) (row percentage: 54%)	50
Total				196

4.5. Regional disparities and similarities in integration outcomes

We now compare the regional groups (based on degree of urbanisation and regional characteristics). In Table 6, we present the results of ANOVA (for degree of urbanisation) and t-test analyses (for clusters) to assess whether integration outcomes (activity gap, employment gap, education gap) differ by cluster and region. Here, findings show that the activity gap between EU-28 migrants and non-EU-28 migrants differs significantly by type of region and by cluster. In all regions, EU-28 migrants have a greater activity rate than non-EU migrants. This gap is particularly large in urban regions as opposed to intermediate or rural regions – also evidenced by the result of Cluster 1 versus that of Cluster 2. Further, the activity rate between non-EU-28 migrants and natives also differs significantly. Here, we note that natives have a higher activity rate than non-EU-28 migrants, particularly in intermediate and urban regions. In rural regions, the gap is much smaller – see also the result for Cluster 2, where non-EU-28 migrants actually have a higher activity rate than natives.

Table 6. Means and ANOVA/t-test results of activity gap, employment gap, education gap by type of region and cluster (based on regional characteristics)

	Type of region			Cluster	
	Rural	Intermediate	Urban	1	2
		F-score (p-value)		t-value (p-value)	
Activity gap EU28 migrants/non-EU28 migrants	-4.03	-6.62	-8.49	-9.81	-0.86
		6.16 (0.00)		**-8.39 (0.00)**	
Activity gap EU28 migrants/Natives	2.46	2.06	4.03	3.15	2.70
		2.64 (0.07)		0.62 (0.54)	
Activity gap non-EU28 migrants/Natives	-1.57	-4.56	-4.46	-6.66	1.84
		3.32 (0.04)		**-8.18 (0.00)**	
Employment gap EU28 migrants/non-EU28 migrants	-7.38	-7.98	-11.03	-11.88	-4.50
		3.81 (0.02)		**-6.38 (0.00)**	
Employment gap EU28 migrants/Natives	1.78	0.05	3.61	1.98	2.41
		5.36 (0.01)		-0.54 (0.59)	
Employment gap non-EU28 migrants/Natives	-5.60	-7.93	-7.42	-9.90	-2.09
		1.25 (0.29)		**-6.53 (0.00)**	
Education gap EU28 migrants/non-EU28 migrants	-4.05	-2.02	-3.49	-4.04	-1.61
		0.38 (0.69)		-1.28 (0.20)	
Education gap EU28 migrants/Natives	2.07	0.64	3.00	3.39	-1.20
		0.75 (0.48)		**2.92 (0.00)**	
Education gap non-EU28 migrants /Natives	-2.20	0.05	0.30	-0.68	-0.96
		1.15 (0.32)		0.17 (0.87)	

Note: F-scores and p-values in bold denote statistically significant ($p < 0.05$) differences.

As for the employment gap, results show that non-EU-28 migrants have a significantly lower employment rate than EU-28 migrants in all regions. This gap is largest in urban regions (11.03%), while there is little difference between rural and intermediate regions (around 7.5%). At the cluster level, we find that the gap in Cluster 1 closely mirrors that of urban regions (11.88%), while the gap in Cluster 2 is much smaller – although the EU-28 migrants still maintain a higher employment rate. Beyond this, we also observe a significant difference in employment between EU-28 migrants and natives by regional typology. Perhaps somewhat surprisingly, the employment rate of EU-28 migrants is higher than that of natives, particularly in urban regions (3.60% difference). There is virtually no gap in intermediate regions, and the gap in rural regions is also limited. As for the employment gap between non-EU-28 migrants and natives, results show that natives have a significantly higher employment rate than non-EU-28 migrants between clusters. Particularly in Cluster 1, this appears to be the case.

As for the gap in tertiary education, there are fewer significant differences. The only statistically significant result here indicates that EU-28 migrants have a higher share of tertiary educated than natives in Cluster 1. No other results were statistically significant.

In conclusion, gaps in activity, employment, or education rate are smaller in predominantly rural regions than in intermediate or urban regions. Similarly, gaps are smaller in Cluster 2 than in Cluster 1. Although this is not always statistically significant, trends for almost each gap of the integration measures points to this.

Main results

- NUTS2 regions with different characteristics have different situations concerning migrant integration outcomes.
- Gaps in activity and employment rate between migrants and natives are smaller in predominantly rural regions than in intermediate or urban regions.
- Similarly, gaps are smaller in low-competitive and non-diverse rural regions than in high-competitive and diverse urban regions.
- Almost no difference in education gaps emerge between rural, intermediate and urban regions; as well as low-competitive and non-diverse rural regions vs. high-competitive and diverse urban regions.

4.6. Which factors explain integration outcomes? The role of integration policies

In order to detect differences in integration outcomes between clusters, we conducted a multilevel regression analysis, given that our NUTS-2 data were nested within 28 EU countries. The dependent variables were the nine integration outcome indicators that were presented in Table 6. As independent variables we included the integration policy indices and the regional typology (with intermediate region as reference category). Furthermore, we controlled for the five NUTS-2 variables that were discussed earlier: GDP in PPS, net migration rate, total population, share of foreign born, and RCI. All variables were z-standardised. The analyses were conducted separately for Cluster 1 and Cluster 2. We did not split the analysis by regional typology (urban, rural, intermediate) because splitting the multilevel analysis between these categories meant that there would be only a small number of NUTS-2 regions in some of the categories. Such a multilevel analysis may yield unreliable estimates, and we thus limited ourselves to presenting this for the clusters only. The regional typology is instead included as independent variable, with 'intermediate regions' as the reference category.

We constructed the models in a stepwise manner, particularly with regards to the integration policy indicators. Rather than adding all MIPEX-scores in one go, we ran each model three times: once with the overall MIPEX-score, then we swapped that indicator our with the MIPEX

labour market score, and then with the MIPEX education score. The indicator regarding policy change and the control variables were included in all models.

Because the gap between EU-28 and non-EU-28 migrants utilises a slightly different logic than the other two gaps, the results for this will be discussed first. Both the activity and employment gap have a similar association with integration policy indicators: in NUTS-2 regions where integration policies (whether we look at the overall score or one of the sub-scores) tend to be more favourable, EU-28 migrants tend to have a higher activity and employment rate than non-EU-28 migrants. However, this is only the case for Cluster 1, which is composed by highly competitive, diverse, urban regions. In Cluster 2 (less competitive and diverse rural regions), there is no significant association between policies and the integration outcome. Additionally, we also observe that for the employment gap, a positive change in integration policies between 2014 and 2017 reduces the gap between these two migrant groups. When we look at these results for the education gap, a different picture presents itself. Notable is that more favourable policies were associated with a smaller gap in Cluster 2. No notable results are found for Cluster 1.

When we look at the gap between EU-28 migrants and natives, we find no significant associations with integration policies – except for one result. For the education gap, we observe that a 'positive' change in policies from 2014 to 2017 is associated with more favourable outcomes for EU-28 migrants as opposed to natives.

Looking at the results of the gap between non-EU-28 migrants and natives, the results are somewhat paradoxical: more favourable integration policies (particularly the case for the employment gap, but evidence is also found for the activity and education gap) are associated with more negative outcomes for non-EU-28 migrants as opposed to natives. However, a positive change in integration policies was also found to be associated with a reduction in this gap.

Regarding the regional characteristics, we observe few significant differences in gaps between regions in most analyses. The exception is when we look at Cluster 2 in the results for the gap between non-EU-28 migrants and natives. Here, we found that for both the activity and employment gap, non-EU-28 migrants perform better in urban and rural regions than in intermediate regions. Thus, it appears that non-EU-28 migrants have poor integration outcomes when compared to natives in intermediate regions included in Cluster 2. Aside from this, we note that in Cluster 2 in the analysis of the employment gap between EU-28 migrants and natives, migrants perform better in urban regions than intermediate regions. In the analysis of share of tertiary educated, we found that in the analysis of the gap between EU-28 and non-EU-28 migrants, EU-28 migrants tend to do better in urban regions than intermediate regions in Cluster 1. At the same time, non-EU-28 migrants tend to perform worse than natives in rural regions in Cluster 2.

Table 7a. Multilevel regression analysis of activity gap by clusters

	Activity gap					
	Gap EU-28 migrants/ non-EU-28 migrants		Gap EU-28 migrants/ natives		Gap non-EU-28 migrants/ natives	
	Cluster 1	Cluster 2	Cluster 1	Cluster 2	Cluster 1	Cluster 2
Intercept	0.17 (0.21)	-0.22 (0.32)	-0.07 (0.23)	-0.10 (0.39)	-0.22 (0.23)	-0.25 (0.29)
Regional characteristics (ref. = intermediate)						
Predominantly rural	-0.18 (0.16)	0.31 (0.25)	0.15 (0.21)	0.14 (0.30)	-0.09 (0.14)	**0.43*** **(0.18)**
Predominantly urban	-0.01 (0.14)	0.21 (0.33)	0.13 (0.18)	0.66 (0.39)	0.05 (0.12)	**0.62**** **(0.23)**
MIPEX: Overall	**-0.33*** **(0.14)**	-0.21 (0.14)	-0.01 (0.14)	0.18 (0.17)	**-0.33*** **(0.16)**	-0.11 (0.15)
MIPEX: Change 2019-2014	0.34 (0.18)	0.19 (0.18)	0.01 (0.18)	-0.27 (0.22)	0.39 (0.21)	0.04 (0.20)
MIPEX: Labour market integration	**-0.33*** **(0.13)**	-0.19 (0.16)	0.08 (0.14)	0.05 (0.20)	-0.28 (0.16)	-0.17 (0.16)
MIPEX: Education	**-0.34**** **(0.13)**	-0.11 (0.16)	-0.11 (0.13)	-0.05 (0.19)	**-0.41**** **(0.14)**	-0.17 (0.16)
Control variables at NUTS-2 level						
GDP in PPS	**-0.17*** **(0.08)**	-0.55 (0.32)	**0.21*** **(0.10)**	0.66 (0.39)	-0.06 (0.07)	-0.17 (0.24)
Net migration	**0.20*** **(0.08)**	0.16 (0.13)	**-0.25*** **(0.11)**	0.14 (0.16)	0.04 (0.07)	0.19 (0.10)
Total population	0.04 (0.08)	**0.30*** **(0.13)**	-0.08 (0.10)	0.12 (0.16)	-0.03 (0.07)	**0.37***** **(0.09)**
Share foreign born	-0.06 (0.06)	-0.06 (0.20)	0.15 (0.08)	-0.14 (0.25)	0.04 (0.06)	-0.08 (0.16)
RCI	**0.41**** **(0.14)**	-0.09 (0.25)	-0.23 (0.18)	**-0.73*** **(0.30)**	**0.40**** **(0.13)**	-0.36 (0.21)

Note: *** p < .001; ** p < 0.01; * p < 0.05. Standardized coefficients presented, standard errors between brackets.

Table 7b. Multilevel regression analysis of employment gap by clusters

	Employment gap					
	Gap EU-28 migrants/ non-EU-28 migrants		Gap EU-28 migrants/ natives		Gap non-EU-28 migrants/ natives	
	Cluster 1	Cluster 2	Cluster 1	Cluster 2	Cluster 1	Cluster 2
Intercept	-0.08 (0.20)	0.23 (0.36)	-0.19 (0.23)	-0.89 (0.40)	-0.18 (0.22)	-0.32 (0.28)
Regional characteristics (ref. = intermediate)						
Predominantly rural	-0.22 (0.16)	0.15 (0.25)	0.15 (0.20)	0.43 (0.29)	-0.12 (0.14)	**0.41*** **(0.17)**
Predominantly urban	-0.07 (0.14)	0.23 (0.33)	0.18 (0.18)	**0.99**** **(0.38)**	0.02 (0.13)	**0.72**** **(0.22)**
MIPEX: Overall	**-0.41**** **(0.12)**	-0.28 (0.17)	-0.08 (0.13)	0.20 (0.15)	**-0.44**** **(0.15)**	-0.17 (0.15)
MIPEX: Change 2019-2014	**0.29*** **(0.16)**	0.22 (0.23)	0.13 (0.17)	-0.32 (0.20)	**0.41*** **(0.19)**	0.02 (0.21)
MIPEX: Labour market integration	**-0.39**** **(0.12)**	-0.27 (0.20)	-0.02 (0.13)	0.03 (0.18)	**-0.38*** **(0.15)**	-0.25 (0.16)
MIPEX: Education	**-0.40**** **(0.12)**	-0.21 (0.19)	-0.20 (0.12)	0.05 (0.18)	**-0.49***** **(0.13)**	-0.19 (0.16)
Control variables at country level						
GDP in PPS	**-0.18*** **(0.08)**	**-0.85*** **(0.33)**	0.19 (0.10)	0.61 (0.37)	-0.08 (0.07)	-0.37 (0.23)
Net migration	**0.23**** **(0.09)**	**0.37**** **(0.14)**	**-0.22*** **(0.11)**	-0.09 (0.16)	0.09 (0.07)	**0.29**** **(0.10)**
Total population	0.08 (0.08)	**0.33*** **(0.13)**	-0.11 (0.10)	-0.03 (0.15)	-0.01 (0.07)	**0.34***** **(0.09)**
Share foreign born	-0.08 (0.07)	0.20 (0.22)	**0.20*** **(0.08)**	**-0.65**** **(0.24)**	0.06 (0.06)	-0.11 (0.15)
RCI	**0.38*** **(0.14)**	0.19 (0.27)	-0.13 (0.17)	**-0.95**** **(0.28)**	**0.38**** **(0.13)**	**-0.45*** **(0.20)**

Note: *** p < .001; ** p < 0.01; * p < 0.05. Standardized coefficients presented, standard errors between brackets.

Table 7c. Multilevel regression analysis of education gap by clusters

	Education gap					
	Gap EU-28 migrants/ non-EU-28 migrants		Gap EU-28 migrants/ natives		Gap non-EU-28 migrants/ natives	
	Cluster 1	Cluster 2	Cluster 1	Cluster 2	Cluster 1	Cluster 2
Intercept	-0.10 (0.29)	-0.12 (0.35)	0.06 (0.27)	0.01 (0.41)	-0.03 (0.27)	0.08 (0.32)
Regional characteristics (ref. = intermediate)						
Predominantly rural	-0.10 (0.20)	-0.17 (0.32)	0.11 (0.21)	-0.35 (0.38)	-0.05 (0.15)	**-0.58**** **(0.20)**
Predominantly urban	**-0.35*** **(0.18)**	0.44 (0.43)	0.31 (0.19)	-0.65 (0.50)	-0.08 (0.13)	-0.01 (0.25)
MIPEX: Overall	-0.12 (0.20)	0.17 (0.12)	-0.01 (0.17)	-0.14 (0.14)	-0.22 (0.19)	0.02 (0.17)
MIPEX: Change 2019-2014	0.15 (0.25)	**-0.47**** **(0.14)**	-0.23 (0.22)	**0.43*** **(0.16)**	-0.03 (0.25)	0.08 (0.22)
MIPEX: Labour market integration	-0.35 (0.19)	**0.32*** **(0.14)**	-0.02 (0.18)	-0.07 (0.19)	**-0.40*** **(0.17)**	0.05 (0.20)
MIPEX: Education	-0.28 (0.19)	0.27 (0.16)	0.00 (0.18)	-0.09 (0.19)	**-0.35*** **(0.17)**	0.02 (0.19)
Control variables at country level						
GDP in PPS	**-0.22*** **(0.10)**	-0.78 (0.39)	0.00 (0.11)	-0.61 (0.44)	**-0.24**** **(0.08)**	**-0.91*** **(0.35)**
Net migration	0.16 (0.11)	**-0.38*** **(0.18)**	0.05 (0.12)	**0.52*** **(0.21)**	**0.17*** **(0.08)**	0.24 (0.13)
Total population	0.08 (0.10)	-0.29 (0.17)	-0.14 (0.11)	-0.30 (0.20)	-0.02 (0.08)	-0.10 (0.11)
Share foreign born	0.06 (0.09)	-0.09 (0.24)	-0.16 (0.10)	-0.30 (0.28)	**-0.14*** **(0.06)**	-0.30 (0.19)
RCI	0.17 (0.21)	0.53 (0.27)	-0.10 (0.22)	0.44 (0.30)	0.22 (0.12)	0.22 (0.25)

Note: *** p < .001; ** p < 0.01; * p < 0.05. Standardized coefficients presented, standard errors between brackets

Summary of the results

Cluster 1 – highly competitive, diverse, urban regions

- Where integration policies have become more inclusive between 2014 and 2017, the employment gap between non-EU migrants and native was reduced.
- Regions where inclusive labour market and education policies are active, non-EU28 migrants still tend to have a lower share of tertiary educated than natives.
- Where the share of foreign born is high, EU28 migrants tend to do better than natives in terms of employment.
- In regions with high net migration, however, EU28 migrants have worse activity and employment numbers than natives.
- In regions with high net migration, non-EU28 migrants have higher tertiary education rates as opposed to natives.
- In wealthy (high GDP) and competitive regions (high RCI), non-EU28 migrants have a lower share of tertiary educated than natives.

Cluster 2 – less competitive and diverse rural regions.

- In regions where integration policies have become more inclusive between 2014 and 2017, EU28 migrants tend to have better tertiary education outcomes than natives.
- Where the total population is larger, the employment gap between non-EU migrants and native is greater.
- In intermediate regions, non-EU 28 migrants tend to have worse activity and employment outcomes than natives, while no gap exists in more rural and more urban regions.
- In more urbanised regions, EU28 migrants tend to outperform natives in terms of employment rate
- In regions with a high share of foreign born and high competitiveness, natives tend to perform better than EU28 migrants in terms of employment
- In regions with high net migration and a high population rate, non-EU28 migrants tend to perform better than natives in terms of employment, while the opposite is true for regions with high competitiveness

Main messages

- ❖ Investing in integration policies for a certain period of time leads to improved integration of migrants (reduced gaps between migrants and natives), especially in high-competitive and diverse urban regions.
- ❖ National policies do not completely fit to low-competitive and non-diverse mostly rural areas.

5. Discussion of results

The analyses and results presented in this paper build on earlier efforts to use the available Eurostat data on infra-national level, in line with the Partnership's stated overall goal. Using the newly available NUTS-2 data, we show how a focus on place and scale provides a more nuanced understanding of immigrant integration outcomes and of the process of integration. By doing so, we have been able to highlight the data's potential for assessing subnational integration outcomes in a comparative way and their usefulness for data practitioners. The Zaragoza indicators have been widely used to identify successes or challenges in the process of immigrant integration at the national level. In this paper we applied different methods in order to classify NUTS-2 regions by integration outcomes on the one hand and integration policy indicators and NUTS-2 regional characteristics on the other.

One of the main conclusions that can be drawn precedes the data analysis in this report. More notably, while we have NUTS-2 level data on activity rate, employment rate, and share of tertiary educated for various groups of migrants, other potential indicators are faced with too much missing data. While the previous report used the rate of NEETs and the unemployment rate, they noted that this reduced the sample from 281 to 58. Furthermore, it is difficult to assess whether these missing data are random – but this is likely not the case. Conclusions drawn based on such skewed indicators must be treated with great caution. Overall, no NUTS-2 level data was available in Bulgaria or Romania, while other Central or Eastern European countries like Slovakia, Slovenia and Hungary were also found to be lacking data at regular intervals. Thus, an initial recommendation is that in order to draw strong conclusions about migrant integration at the subnational level, we first need high-quality data from as many European countries as possible. Beyond this, efforts should be made to look into collecting data at the NUTS-2 level on additional indicators for migrant integration. At the country level, Eurostat has highly relevant data on social inclusion-indicators of migrants (e.g. housing, poverty risk, active citizenship, employment conditions). By being able to access these data at the NUTS-2 level, it will be possible to provide a much more fine-grained analysis of integration outcomes, rather than solely focusing on employment and education.

The findings in the current report build on the two clusters developed in the previous study (based on the activity, employment, and tertiary education rate of migrants) can still be used in a meaningful. A descriptive distribution of these clusters shows that the first one consists mainly of urban regions; regions with high economic competition and cultural and ethnic diversity. The second cluster contains more rural regions, with markedly less diversity and less economic competition.

When we look at whether integration outcomes with regards to activity rate, employment rate, and education rate differ between these clusters and urban/intermediate/rural regions, we can draw several conclusions. First, it is apparent that non-EU-28 migrants consistently have worse integration outcomes with regards to activity rate and employment rate than EU-28 migrants (this was also the case for education, but not statistically significant). Going forward with research on this topic, this therefore signals the importance of distinguishing between migrant groups, not only in comparison with natives but also with each other. It is also notable that the gaps that are analysed in Table 6 are (almost) always larger in urban regions than in rural regions, or in Cluster 1 (which we know mostly consists of urban regions) than in Cluster 2. This indicates that the unequal integration outcomes, whether it be among migrants or the comparison migrants – natives, are more pronounced in cities than in smaller towns.

When we look at the association between integration policy indicators and integration outcomes, several trends emerge. Overall, favourable integration policies are associated with more favourable integration outcomes for EU-28 migrants when compared to non-EU-28 migrants. Second, favourable integration policies also appear to negatively affect outcomes for non-EU-28 migrants when compared to natives. Furthermore, when policies change in a positive way between 2014 and 2017, this effect is mostly reduced. This indicates that

favourable integration policies do not always lead to more favourable integration outcomes, particularly among these non-EU-28 migrants. An important sidenote here is that this mostly appears to be the case in Cluster 1; those with mostly urban regions.

Final considerations

The assessment of immigrant integration outcomes at the NUTS-2 scale provides important insights into the process of integration and highlights important function of showing subnational differentiation in integration outcomes. This report builds on earlier insights (Joki, 2020) and confirms that there are key differences between (types of) subnational regions that enhance our understanding of the process of immigrant integration. While we continue to use the nuanced spatial perspective from Joki (2020), it is important to acknowledge that key data to obtain more fundamental insights is missing at the NUTS-2 level. In this study, we chose not to include information on the unemployment rate and the share of NEETs due to a large amount of missing data at the NUTS-2 level for EU28-migrants and non-EU-28 migrants. This highlights a critical gap in the available NUTS-2 data. While it is important for policy makers to have information at this level, information on unemployment and NEETs is missing – but likely not at random. Particularly in Eastern European countries (e.g. Romania, Bulgaria), data on these integration indicators at the NUTS-2 level is lacking. Making further efforts to collect data in all countries would provide a large benefit for policy makers in these regions and at the European level.

Furthermore, having data for more NUTS-2 regions would also allow for more statistical possibilities. Using data sources on policies like IMPIC (migration policy), which unfortunately does not cover all the EU countries and therefore was not included in the analysis for this paper, or MIPEX (integration policy) to analyse the effect of policies on integration outcomes at the NUTS-2 level is only possible when there are sufficient NUTS-2 regions included in the dataset, as statistical analysis otherwise provides biased estimates.

Another point that requires additional attention is a feasible operationalisation of the rural-urban typology for NUTS-2 regions. Various European countries have different ways of classifying urban and rural areas. As a consequence, these classifications are specific to the countries concerned and therefore not strictly comparable across countries. Based on the OECD regional typology, Eurostat has developed a rural-urban typology for NUTS-3 regions to cover all countries of the European Union. However, Eurostat does not publish an urban-rural typology at NUTS-2 level, while there is a need of such data at this level (e.g. to facilitate the implementation of regional policies). While Eurostat does publish information regarding such outcomes by degree of urbanisation, this is not as detailed as NUTS-2 regions: even within a single NUTS-2 region, it is possible that there are both urban and rural regions. On average, urban residents have better access to education, health care and transportation than rural populations and thereby urban-rural differences are relevant for integration outcomes. While we agree with Eurostat's argumentation that an identical application of an urban-rural typology at NUTS-2 could hide significant differences at a low regional level, nevertheless, an urban-rural typology of NUTS-2 regions would be useful and would limit data users constructing and applying proxy measures that do not undergo an assessment of validity.

Overall key conclusions

- NUTS2 regions with similar characteristics have comparable integration outcomes.
- Four meaningful groups/situations can be identified on the basis of regional characteristics and integration indicators with potential for international mutual learning, exchange and comparison.
- Results highlight the data's potential for assessing regional integration outcomes in a comparative way.
- Large data gaps remain concerning regions in some countries (often Central-Eastern countries) and topics (only education and employment are covered).

6. Appendices

Table A1. Distribution of NUTS2-regions by clusters

NUTS-2 code	Region	Regional characteristics		Integration outcomes		Typology			
		Cluster 1	Cluster 2	Cluster 1	Cluster 2	A	B	C	D
AT11	Burgenland	X							
AT12	Niederösterreich	X			X			X	
AT13	Wien	X			X			X	
AT21	Kärnten	X			X			X	
AT22	Steiermark	X			X			X	
AT31	Oberösterreich	X			X			X	
AT32	Salzburg	X			X			X	
AT33	Tirol	X			X			X	
AT34	Vorarlberg	X			X			X	
BE10	Région de Bruxelles-Capitale	X			X			X	
BE21	Antwerpen	X			X			X	
BE22	Limburg	X			X			X	
BE23	Oost-Vlaanderen	X			X			X	

BE24	Vlaams-Brabant	X				X					X
BE25	West-Vlaanderen	X				X					X
BE31	Brabant Wallon	X				X					X
BE32	Hainaut	X				X					X
BE33	Liège	X				X					X
BE34	Luxembourg	X			X			X			
BE35	Namur	X				X					X
BG31	Severozapaden			X							
BG32	Severen tsentralen			X							
BG33	Severoiztochen			X							
BG34	Yugoiztochen			X							
BG41	Yugozapaden			X							
BG42	Yuzhen tsentralen			X							
CY00	Cyprus	X			X			X			
CZ01	Praha	X				X					X
CZ02	Střední Čechy	X			X			X			
CZ03	Jihozápad			X	X				X		
CZ04	Severozápad			X	X				X		

CZ05	Severovýchod		X	X			X	
CZ06	Jihovýchod		X	X			X	
CZ07	Střední Morava		X	X			X	
CZ08	Moravskoslezsko		X	X			X	
DE11	Stuttgart	X			X			X
DE12	Karlsruhe	X			X			X
DE13	Freiburg	X			X			X
DE14	Tübingen	X			X			X
DE21	Oberbayern	X			X			X
DE22	Niederbayern	X			X			X
DE23	Oberpfalz	X			X			X
DE24	Oberfranken	X			X			X
DE25	Mittelfranken	X		X		X		
DE26	Unterfranken	X			X			X
DE27	Schwaben	X			X			X
DE30	Berlin	X			X			X
DE40	Brandenburg	X			X			X
DE50	Bremen	X			X			X

DE60	Hamburg	X		X		X	
DE71	Darmstadt	X		X		X	
DE72	Gießen	X		X		X	
DE73	Kassel	X		X		X	
DE80	Mecklenburg-Vorpommern		X	X			X
DE91	Braunschweig	X		X		X	
DE92	Hannover	X		X		X	
DE93	Lüneburg	X		X		X	
DE94	Weser-Ems	X		X		X	
DEA1	Düsseldorf	X		X		X	
DEA2	Köln	X		X		X	
DEA3	Münster	X		X		X	
DEA4	Detmold	X		X		X	
DEA5	Arnsberg	X		X		X	
DEB1	Koblenz	X		X		X	
DEB2	Trier	X		X		X	
DEB3	Rheinhessen-Pfalz	X		X		X	
DEC0	Saarland	X		X		X	

DED2	Dresden	X			X			X			
DED4	Chemnitz		X								
DED5	Leipzig	X									
DEE0	Sachsen-Anhalt		X								
DEF0	Schleswig-Holstein	X			X			X			
DEG0	Thüringen		X		X					X	
DK01	Hovedstaden	X			X			X			
DK02	Sjælland	X			X			X			
DK03	Syddanmark	X			X			X			
DK04	Midtjylland	X			X			X			
DK05	Nordjylland	X			X			X			
EE00	Estonia		X	X			X				
EL30	Attiki		X		X					X	
EL41	Voreio Aigaio		X								
EL42	Notio Aigaio		X								
EL43	Kriti		X								
EL51	Anatoliki Makedonia, Thraki		X		X					X	
EL52	Kentriki Makedonia		X		X					X	

EL53	Dytiki Makedonia		X								
EL54	Ipeiros		X								
EL61	Thessalia		X								
EL62	Ionia Nisia		X								
EL63	Dytiki Elláda		X								
EL64	Sterea Elláda		X								
EL65	Peloponnisos		X								
ES11	Galicia		X	X				X			
ES12	Principado de Asturias		X		X						X
ES13	Cantabria		X	X				X			
ES21	País Vasco	X			X				X		
ES22	Comunidad Foral de Navarra	X			X				X		
ES23	La Rioja		X		X						X
ES24	Aragón		X		X						X
ES30	Comunidad de Madrid	X			X				X		
ES41	Castilla y León		X		X						X
ES42	Castilla-La Mancha		X		X						X
ES43	Extremadura		X								

ES51	Cataluña	X			X			X	
ES52	Comunitat Valenciana	X			X			X	
ES53	Illes Balears	X			X			X	
ES61	Andalucía		X		X				X
ES62	Región de Murcia		X		X				X
ES63	Ciudad de Ceuta		X						
ES64	Ciudad de Melilla		X						
ES70	Canarias	X		X		X			
FI19	Länsi-Suomi		X		X				X
FI1B	Helsinki-Uusimaa	X			X			X	
FI1C	Etelä-Suomi		X		X				X
FI1D	Pohjois- ja Itä-Suomi		X		X				X
FI20	Åland	X							
FR10	Ile-de-France	X			X			X	
FRB0	Centre — Val de Loire		X		X				X
FRC1	Bourgogne		X		X				X
FRC2	Franche-Comté		X						
FRD1	Basse-Normandie		X						

FRD2	Haute-Normandie		X												
FRE1	Nord-Pas de Calais		X	X						X					
FRE2	Picardie		X												
FRF1	Alsace	X			X							X			
FRF2	Champagne-Ardenne		X												
FRF3	Lorraine		X		X									X	
FRG0	Pays de la Loire		X		X									X	
FRH0	Bretagne		X		X									X	
FRI1	Aquitaine	X		X		X									
FRI2	Limousin		X												
FRI3	Poitou-Charentes		X												
FRJ1	Languedoc-Roussillon	X			X							X			
FRJ2	Midi-Pyrénées	X			X							X			
FRK1	Auvergne		X												
FRK2	Rhône-Alpes	X			X							X			
FRL0	Provence-Alpes-Côte d’Azur	X			X							X			
FRM0	Corse	X													
FRY1	Guadeloupe		X												

FRY2	Martinique		X						
FRY3	Guyane	X							
FRY4	La Réunion		X						
FRY5	Mayotte		X						
HR03	Adriatic Croatia		X		X				X
HR04	Continental Croatia		X		X				X
HU11	Budapest	X			X			X	
HU12	Pest	X		X		X			
HU21	Közép-Dunántúl		X						
HU22	Nyugat-Dunántúl		X						
HU23	Dél-Dunántúl		X						
HU31	Észak-Magyarország		X						
HU32	Észak-Alföld		X						
HU33	Dél-Alföld		X						
IE04	Northern and Western	X		X		X			
IE05	Southern	X		X		X			
IE06	Eastern and Midland	X		X		X			
ITC1	Piemonte	X							

ITC2	Valle d’Aosta/Vallée d’Aoste		X								
ITC3	Liguria	X			X			X			
ITC4	Lombardia	X			X			X			
ITF1	Abruzzo		X	X			X				
ITF2	Molise		X								
ITF3	Campania		X	X			X				
ITF4	Puglia		X	X			X				
ITF5	Basilicata		X								
ITF6	Calabria		X	X			X				
ITG1	Sicilia		X	X			X				
ITG2	Sardegna		X	X			X				
ITH1	Provincia Autonoma di Bolzano/Bozen	X			X			X			
ITH2	Provincia Autonoma di Trento	X			X			X			
ITH3	Veneto	X			X			X			
ITH4	Friuli-Venezia Giulia	X			X			X			
ITH5	Emilia-Romagna	X			X			X			
ITI1	Toscana	X			X			X			
ITI2	Umbria		X		X					X	

ITI3	Marche		X		X				X
ITI4	Lazio	X		X		X			
LT01	Sostinės regionas		X		X				X
LT02	Vidurio ir vakarų Lietuvos regionas		X	X			X		
LU00	**Lithuania**	X		X		X			
LV00	**Latvia**		X	X			X		
MT00	**Malta**	X		X		X			
NL11	Groningen	X			X			X	
NL12	Friesland (NL)	X							
NL13	Drenthe	X			X			X	
NL21	Overijssel	X			X			X	
NL22	Gelderland	X			X			X	
NL23	Flevoland	X			X			X	
NL31	Utrecht	X			X			X	
NL32	Noord-Holland	X			X			X	
NL33	Zuid-Holland	X			X			X	
NL34	Zeeland	X			X			X	
NL41	Noord-Brabant	X			X			X	

NL42	Limburg (NL)	X		X	X
PL21	Małopolskie		X		
PL22	Śląskie		X		
PL41	Wielkopolskie		X		
PL42	Zachodniopomorskie		X		
PL43	Lubuskie		X		
PL51	Dolnośląskie		X		
PL52	Opolskie		X		
PL61	Kujawsko-pomorskie		X		
PL62	Warmińsko-mazurskie		X		
PL63	Pomorskie		X		
PL71	Łódzkie		X		
PL72	Świętokrzyskie		X		
PL81	Lubelskie		X		
PL82	Podkarpackie		X		
PL84	Podlaskie		X		
PL91	Warszawski stołeczny	X		X	X
PL92	Mazowiecki regionalny		X		

PT11	Norte		X	X			X	
PT15	Algarve		X					
PT16	Centro (PT)		X	X			X	
PT17	Área Metropolitana de Lisboa	X			X			X
PT18	Alentejo		X					
PT20	Região Autónoma dos Açores		X					
PT30	Região Autónoma da Madeira		X					
RO11	Nord-Vest		X					
RO12	Centru		X					
RO21	Nord-Est		X					
RO22	Sud-Est		X					
RO31	Sud-Muntenia		X					
RO32	Bucureşti-Ilfov	X						
RO41	Sud-Vest Oltenia		X					
RO42	Vest		X					
SE11	Stockholm	X			X			X
SE12	Östra Mellansverige	X			X			X
SE21	Småland med öarna	X			X			X

SE22	Sydsverige	X				X						X			
SE23	Västsverige	X				X						X			
SE31	Norra Mellansverige	X				X						X			
SE32	Mellersta Norrland	X													
SE33	Övre Norrland	X				X						X			
SI03	Vzhodna Slovenija		X			X								X	
SI04	Zahodna Slovenija	X				X						X			
SK01	Bratislavský kraj	X													
SK02	Západné Slovensko		X												
SK03	Stredné Slovensko		X												
SK04	Východné Slovensko		X												
UKC1	Tees Valley and Durham		X	X					X						
UKC2	Northumberland and Tyne and Wear	X		X			X								
UKD1	Cumbria		X												
UKD3	Greater Manchester	X				X						X			
UKD4	Lancashire	X		X			X								
UKD6	Cheshire	X		X			X								
UKD7	Merseyside	X		X			X								

UKE1	East Yorkshire and Northern Lincolnshire	X	X		X	
UKE2	North Yorkshire	X	X		X	
UKE3	South Yorkshire	X	X		X	
UKE4	West Yorkshire	X		X		X
UKF1	Derbyshire and Nottinghamshire	X	X		X	
UKF2	Leicestershire, Rutland and Northamptonshire	X	X		X	
UKF3	Lincolnshire	X	X		X	
UKG1	Herefordshire, Worcestershire and Warwickshire	X		X		X
UKG2	Shropshire and Staffordshire	X	X		X	
UKG3	West Midlands	X		X		X
UKH1	East Anglia	X	X		X	
UKH2	Bedfordshire and Hertfordshire	X	X		X	
UKH3	Essex	X	X		X	
UKI3	Inner London — West	X		X		X
UKI4	Inner London — East	X		X		X
UKI5	Outer London — East and North East	X	X		X	
UKI6	Outer London — South	X	X		X	
UKI7	Outer London — West and North West	X	X		X	

UKJ1	Berkshire, Buckinghamshire and Oxfordshire	X		X		X			
UKJ2	Surrey, East and West Sussex	X		X		X			
UKJ3	Hampshire and Isle of Wight	X		X		X			
UKJ4	Kent	X		X		X			
UKK1	Gloucestershire, Wiltshire and Bristol/Bath area	X		X		X			
UKK2	Dorset and Somerset	X		X		X			
UKK3	Cornwall and Isles of Scilly	X							
UKK4	Devon	X		X		X			
UKL1	West Wales and The Valleys		X	X			X		
UKL2	East Wales	X			X			X	
UKM5	North Eastern Scotland	X		X		X			
UKM6	Highlands and Islands		X						
UKM7	Eastern Scotland	X		X		X			
UKM8	West Central Scotland	X			X			X	
UKM9	Southern Scotland		X		X				X
UKN0	Northern Ireland	X		X		X			
	Total	157	124	62	134	39	23	107	27