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WHAT EXPLAINS IMMIGRANT-NATIVE GAPS IN EUROPEAN LABOR MARKETS: THE ROLE OF INSTITUTIONS

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ABSTRACT

What Explains Immigrant-native gaps in European Labor Markets: The Role of Institutions

The role of institutions in immigrant integration remains underexplored in spite of its essential significance for integration policies. This paper adopts the Varieties of Capitalism framework to study the institutional determinants of immigrant-native gaps in host labor markets. Using the EU LFS we first measure immigrant-native gaps in labor force participation, unemployment, low-skilled employment and temporary employment. We distinguish the gaps that can be explained by immigrant-native differences in characteristics from those that cannot be explained by such differences, as these require different integration policy approaches. In the second stage we measure the effects of institutional and contextual variables on explained and unexplained immigrant-native gaps. Our findings confirm that institutional contexts play a significant role in immigrant integration, and highlight the importance of tailoring policy approaches with regard to the causes of immigrant-native gaps.

Keywords: immigrant integration, integration policy, discrimination, labor market, Varieties of Capitalism

JEL Classification: J15, J18, J61

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1. Introduction

Immigrant-native labor market gaps can be viewed as an inevitable artifact of the imperfect adjustment of immigrants and natives in globalized labor markets, but also as a challenge that may threaten cohesion in receiving societies. With 6.7% of the population in the European Union being foreign-born¹, it is an important task for scientists as well as policy makers to better understand the determinants of native-immigrant gaps in receiving labor markets.

This topic has received much scholarly attention, starting with the seminal works by Chiswick (1978) and Borjas (1985), who looked at immigrant adjustment in the US. Several studies, including Zimmermann (2005), Kahanec and Zaiceva (2009), Kahanec, Zaiceva and Zimmermann (2011) focused on European labor markets, finding labor market gaps between immigrants and natives that vary across outcome variables, immigrant groups, receiving countries, and time. Although there is evidence that some of these gaps decline with time spent in the receiving country, the studies show that they do not necessarily disappear fully, and that some of them are transferred across generations of immigrants, while some may even increase in subsequent generations (Kahanec and Zimmermann, 2011).²

The literature has identified a number of determinants of native-immigrant labor market gaps, including years since migration (Chiswick, 1978; Borjas, 1985; Kahanec, Zaiceva and Zimmermann, 2011), year of arrival, or the cohort effect, (Borjas, 1985), country of origin

¹ Eurostat, January 2013. Available at:

http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Migration_and_migrant_population_statistics#Foreign_and_foreign-born_population

² In addition to the studies which take a pan-European perspective, there are numerous country studies, including Clark and Drinkwater (2014) for the UK, Amuedo-Dorantes and de la Rica (2007) for Spain, or Biavaschi and Zimmermann (2014) for Germany.

(Adsera and Chiswick, 2007), lower returns to human capital (Van Ours and Veenman, 1999; Aeberhardt et al. 2007), gender (Adsera and Chiswick, 2007), or lack of citizenship rights (Fougère and Safi, 2006, Constant and Zimmermann, 2005, Kahanec and Zaiceva, 2009). The role of social capital is studied by Kahanec and Mendola (2009), while Constant and Zimmermann (2008) conceptualize and demonstrate the role of ethnic identity. There is also evidence that discriminatory attitudes towards immigrants pose barriers to their labor market integration (Becker, 2010; Constant, Kahanec and Zimmermann, 2009; Rooth, 2014).

Although native-immigrant labor market gaps have been extensively studied in the literature (some of which is mentioned above), there is no systematic evidence of how macro-level institutional contexts affect these gaps.³ Moreover, the literature remains silent as to which institutional factors explain the gaps driven by differing characteristics of native and immigrant groups, and what factors drive the gaps that cannot be explained by such observable differences. The only exception known to us is a related paper by Guzi, Kahanec and Mýtina Kureková (2015), who adopt a methodology similar to the one we use in this paper to investigate the role of immigration and integration policies for native-immigrant labor market gaps.⁴

Differentiating the two types of native-immigrant gaps is, however, a key aspect of immigrant integration in host labor markets. This is the policy challenges and implications for reducing the explained part of the native-immigrant gaps are different from those relevant to closing the gaps between observably equal natives and immigrants. To illustrate, whereas immigration, education,

³ A study by Kahancová and Szabó (2012) reviews what little we know about the role of industrial relations for immigrants' integration outcomes. Dustmann and Frattini (2011) and D'Amuri and Peri (2010) study the role of institutions in a different framework and focus only on employment protection.

⁴ See also Kahanec (2014).

health and housing policies are the key factors affecting human capital gaps between natives and immigrants, antidiscrimination and equal treatment policies are the primary tools for addressing the problem of unexplained native-immigrant gaps.

This study breaks new ground by offering a systematic measurement of the role of labor market institutions and supply and demand factors on immigrant-native labor market gaps. In stage one, using the EU LFS as an underlying source of data, we construct a panel dataset containing measures of native-immigrant labor market gaps as well as institutional characteristics for a set of European countries in the period 2004-2012. Specifically, we distinguish two sources of native-immigrant labor market gaps: differences in characteristics interpreted as the *explained* component (educational attainment, gender or age composition, geographic distribution); and unobserved characteristics, such as group differences in ethnic or social capital, behavioral variables, unequal treatment, discrimination or other unobserved factors, as the *unexplained* component. The explained gap reflects immigrant-native group differences that arise outside of the labor market, whereas unexplained gaps imply unequal treatment or behavior of immigrants and natives in the labor market. This is an important distinction from the policy perspective.

In stage two we use the panel constructed in stage one to evaluate the role of institutional and supply and demand factors for immigrant-native labor market gaps, which we do separately for the explained and unexplained components. We broadly adapt the varieties of capitalism (VoC) framework (Hall and Soskice, 2001) and its later extensions (Hancké, Rhodes and Thatcher, 2007) to test the effect of country clusters with similar institutional characteristics. In addition to country types, the key independent variables that underpin the VoC framework and which we

hypothesize to have an impact on native-immigrant labor market gaps are: employment protection indicators related to regular and temporary contracts, union density, and coverage of collective bargaining agreements. We control for additional supply and demand factors by including the countries' GDP per capita and unemployment rate in the analysis.

This study helps us to understand which institutional variables provide for a more equitable immigrant-native relationship in terms of greater similarity between the immigrant and native populations (explained gap) and which variables are conducive to more similar treatment and behavior of immigrant and native populations in the labor market (unexplained gap). We proceed as follows: the next section constructs measurements of immigrant-native labor market gaps, explained and unexplained, and outlines the institutional measures used. We then develop an empirical model to test the institutional determinants of explained and unexplained labor market gaps, before reporting and interpreting the results and offering conclusions.

2. Constructing the data

2.1 Immigrant-native labor market gaps

The explained component of native-immigrant labor market gaps represents the part of the total existing native-immigrant gaps that arises due to differentials originating outside the labor market, due to observable differences in characteristics such as educational attainment, gender or age composition, and geographic distribution, between immigrant and native populations. These mainly result from various aspects of immigrant selection, or educational, housing or health factors.

On the other hand, the unexplained component represents the part of native-immigrant gaps that is due to unobservable group differentials, including differences in social or ethnic capital, or discrimination in the labor market. This component implies the existence of unequal treatment of observably identical individuals, which relates to (anti-) discrimination policies; or may reflect different returns to human, social and ethnic capital in the host country's labor market.

Specifically, in the same way as Guzi and Kahanec (2015), we use the 2004-2012 waves of the EU Labor Force Survey (EU LFS) to construct four dependent variables to assess the position of migrants in the labor market, including immigrant-native gaps in labor force participation, unemployment status, the incidence of low-skill jobs and the type of contract, temporary or permanent. The sample includes about 8.1 million individuals, of which 8.5 % are immigrants.

Participation in the labor market measures natives' and immigrants' access to the labor market, unemployment rate measures their chances of getting a job, and the last two variables gauge the quality of the jobs the immigrants are able to get. Following the ILO's definition, participation rate refers to the share of the working age population who are either employed or unemployed, i.e. have no job but are actively looking for and can take one. Low-skill jobs are defined as elementary occupations consisting of simple and routine tasks in the ISCO-9 group. Temporary contracts are defined in the EU LFS as contracts with a limited duration. The sample includes 19 countries with sufficient observations on immigrants in the EU Labor Force Survey: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary,

Ireland, Italy, Luxembourg, the Netherlands, Portugal, Slovakia, Spain, Sweden and the United Kingdom.⁵

To measure what proportion of the mean differences in labor market outcomes between natives n and immigrants m is accounted for by differences in the observable characteristics of migrant and native populations, and what proportion remains unexplained, we adopt a version of the Blinder-Oaxaca (Oaxaca, 1973; Blinder, 1973) framework. The procedure uses an econometric model to explain individual labor market outcomes, which is estimated separately for natives (1) and for migrants (2) for each outcome variable Y , country k and year t

$$Y_n = \alpha_n + X'_n \beta_n + \varepsilon_n \quad (1)$$

$$Y_m = \alpha_m + X'_m \beta_m + \varepsilon_m, \quad (2)$$

where X is the vector of observable individual characteristics, α is the intercept, β is the vector of coefficients, and ε is the error term.

In order to examine the sources of outcome variable differentials between natives and migrants, a counterfactual model is constructed in which migrants are treated as natives. The counterfactual outcome \bar{Y}_m^* for migrants is defined as

$$\bar{Y}_m^* = \hat{\alpha}_n + \bar{X}'_m \hat{\beta}_n, \quad (3)$$

where we take the intercept and coefficients $\hat{\beta}_n$ from the model estimated for natives, and \bar{X}_m is a vector of the means of the explanatory variables for migrants. The average gap between natives and migrants can then be decomposed into a gap explained by characteristics, that is, differences between the natives' outcome and the counterfactual outcome, and a gap due to coefficients, i.e.

⁵ The sample includes all countries for which there is sufficient information on the immigrant population in the EU-LFS. Migrant status is based on country of birth except for Germany, where we use information on nationality for this purpose.

differences between the counterfactual outcome and the migrants' outcome. The Blinder-Oaxaca decomposition of native-immigrant gap Δ for each outcome variable, country k and year t is then

$$\Delta \equiv \bar{Y}_n - \bar{Y}_m = (\bar{X}_n - \bar{X}_m)' \hat{\beta}_n + \bar{X}_m' (\hat{\beta}_n - \hat{\beta}_m) \equiv \Delta^e + \Delta^u, \quad (4)$$

where \bar{X}_n and \bar{X}_m are vectors of the means of the explanatory variables for natives and migrants, respectively, and $\hat{\beta}_n$ and $\hat{\beta}_m$ are the estimated coefficients from regressions (1) and (2). The first term of equation (4) on the right-hand side, Δ^e , is the gap due to the different (average) characteristics of natives and immigrants, hence the *explained* gap. The second term, Δ^u , is the gap due to differences in coefficients, and in this sense remains an *unexplained* gap. We adopt a non-linear decomposition technique described by Yun (2004) to perform the decomposition outlined above on the binary dependent variables. This procedure, performed for each country k and year t separately, yields longitudinal data (with dimensions k and t) spanning 21 European countries over the period 2004-2012 for explained and unexplained immigrant-native gaps (Δ^e and Δ^u) in each of the outcome variables: labor force participation, unemployment status, incidence of low-skill jobs, and type of contract (temporary or permanent). Table 1 shows the characteristics separately for native and immigrant populations. A number of differences are identified as significant, given the large sample size. The immigrant population is somewhat younger and less educated than the native population, and is concentrated in urban areas.

Table 1. Descriptive statistics

	Migrant	Native
Female	0.51	0.50
Age	38.6	39.9
ISCED1 primary	0.15	0.09
ISCED2 lower secondary	0.25	0.24
ISCED3 upper secondary	0.35	0.42
ISCED4 post-secondary	0.02	0.02
ISCED5 university	0.22	0.22
ISCED6 postdoc	0.01	0.01
Urbanization: Densely-populated area	0.66	0.47
Urbanization: Intermediate area	0.22	0.31
Urbanization: Thinly-populated area	0.12	0.22

Source: Authors' calculation based on EU-LFS, 2004-2012

Note: The sample is limited to individuals aged 15-64 years old. Statistics are weighted by population weights.

2.2 Labor Market Institutions

Labor market institutions are an integral part of a broader institutional framework in which immigration and immigrant integration take place. The organization of industrial relations, education and vocational training, corporate governance and organization of the production process, and supply and demand factors all affect what types of immigrants are likely to come to a given country and how difficult it is for them to integrate in that country's labor market. To illustrate, immigrants may find it easier to adjust in countries whose educational system promotes general rather than specific skills, as specific skills may be more difficult to transfer from their countries of origin. From another perspective, stronger trade unions may be able to ensure equal employment conditions for immigrants; however, those with less favorable characteristics may find it more difficult to find a job under such conditions (for a detailed discussion of these issues see Guzi, Kahanec, and Mýtina Kureková, 2014).

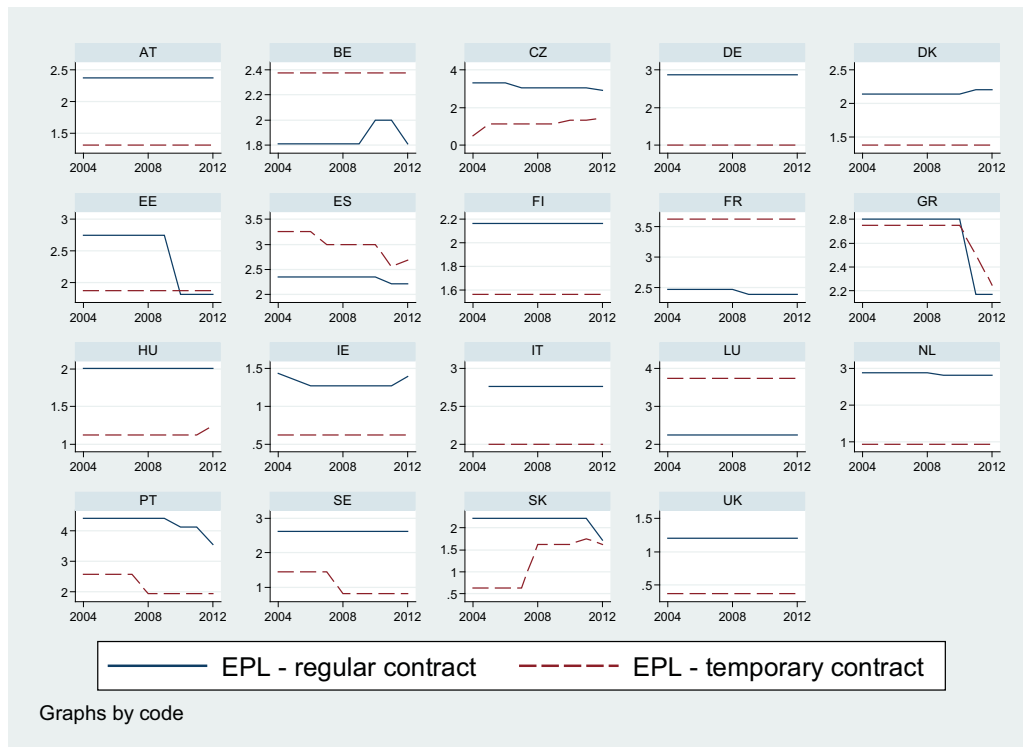
To measure the effect of these institutional contexts and complementarities on native-immigrant labor market gaps, we adopt concepts from the Varieties of Capitalism (VoC) literature. Specifically, following Hall and Soskice (2001) and Hancké, Rhodes and Thatcher (2007), we distinguish between coordinated market economies (CMEs), liberal market economics (LMEs), mixed market economies (MMEs), and emerging market economies (EMEs).⁶

In addition to these broad VoC categories, we also consider a number of more specific explanatory institutional variables. First, labor market regulation, measured by the employment protection index (EPL), gauges labor market rigidities. We test whether the level of labor market flexibility can partly explain immigrant-native gaps. The EPL indicators are published annually by OECD, and observe 21 different aspects of employment protection regulation. We consider two indices, for protection of regular employment and for regulation of temporary forms of employment, in order to capture both regular employment and the more flexible forms of employment via which migrants are often more likely to enter the labor market. The former is based on a broad set of indicators, such as the period of notice before dismissal, severance pay, and the difficulties associated with worker dismissal. The latter considers restrictions on fixed-term contracts in the labor market, such as the maximum number or duration of successive contracts, and the type of work eligible for temporary employment contracts. Both indicators are measured on a scale between 1 and 6, with higher values corresponding to higher labor market

⁶ In particular, the 19 EU countries we include in this study are grouped as follows: CME includes Austria, Belgium, Germany, Denmark, Finland, Luxembourg, the Netherlands, and Sweden; LME includes Ireland and the United Kingdom; MME includes France, Greece, Italy, Portugal and Spain; and EME includes the Czech Republic, Estonia, Hungary and Slovakia.

rigidities (i.e. less flexibility and more protection). Figure 1 shows that the employment protection variables vary across countries and to some extent also over time.

Figure 1. Employment protection indicators



Source: OECD

Note: The data points in missing years are imputed using linear interpolation

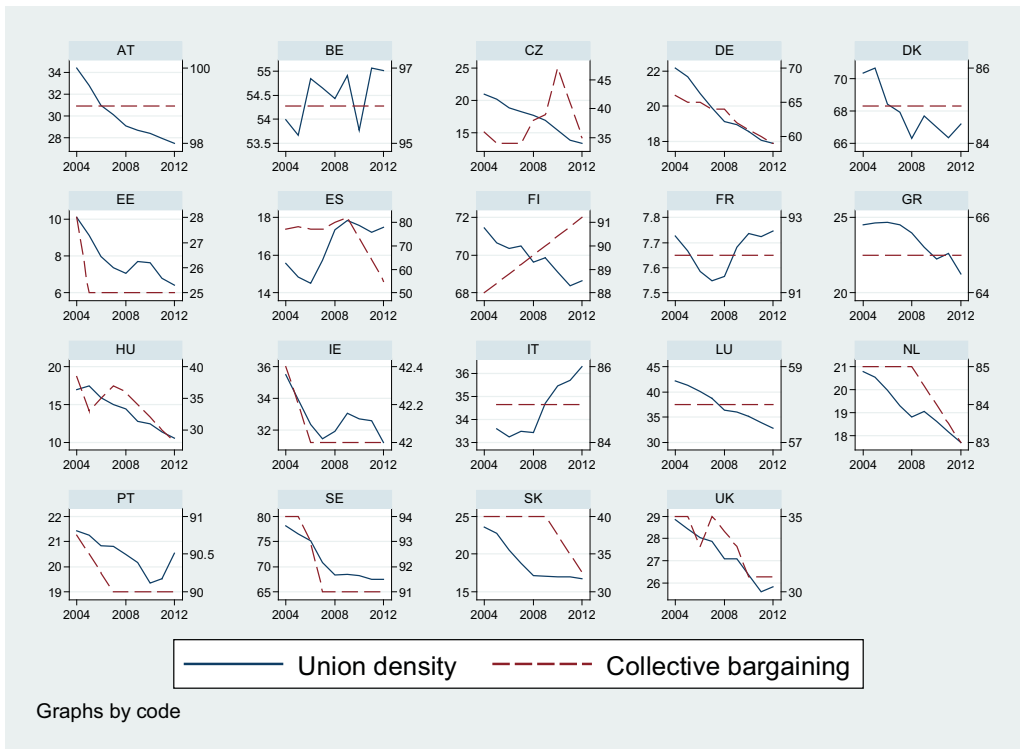
Second, we use indicators of social dialogue related to trade union membership and the coverage of collective agreements. The former measures the extent of unionization, as the share of workers who are members of a trade union, and also an indicator of trade union strength (referred to as union density). The latter tells us about the unions' influence and bargaining power, measuring the proportion of all wage and salary earners in employment whose pay and/or conditions of

employment are determined by a collective agreement. It is important to include both these indicators in the analysis, as each may affect labor market outcomes and may interact with how industrial relations are shaped in the relevant country. For example, in some countries trade union density rates may be comparatively low, yet the degree to which wages and working conditions are regulated by collective agreements may be high (or vice versa). From the perspective of stakeholders in wage bargaining, each of these variables may compensate for the lack of the other, which in turn potentially links them through the stakeholders' strategic choices. We test whether the more unionized countries and/or those with more extensive collective agreement extensions provide more inclusive environments supporting immigrants' integration, i.e. whether these aspects can partially explain immigrant-native gaps.

We take these two variables from the publicly available database on the Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts (ICTWSS), compiled by Jelle Visser. Figure 2 shows there is a large variation in levels of union membership over time and across countries, ranging from around 70% of employees in Finland, Sweden or Denmark, to less than 10% in Estonia and France. As with union density, the coverage rates vary across countries and over time, although in several countries the coverage rate is constant (Figure 2). The coverage rate is traditionally very high (above 80 %) in Austria, Belgium, France, Italy, the Netherlands, Portugal, Spain and all Scandinavian countries. In contrast, the coverage rate is low (below 40%) in eastern European countries, with the exception of Slovenia whose coverage rate is around 90%.⁷

⁷ Indicators of trade union density or collective bargaining coverage need to be interpreted, however, in the context of the prevailing industrial relations framework and labor market characteristics.

Figure 2. Indicators of social dialogue in Europe



Source: ICTWSS database (2013)

Note: The data points in missing years are imputed using linear interpolation. The right axis shows labels for collective bargaining.

Several structural variables characterizing the various VoC types may affect supply and demand conditions, and hence immigrant workers' integration prospects in European labor markets. The country's openness to international trade is one such factor. Whereas the standard Heckscher-Ohlin model posits that migration and international trade are substitutes, its extensions and more recent trade theories suggest that they are complements (Venables, 1999; Krugman, 1995; Markusen et al. 1995). Whichever is the case, a country's openness may influence the demand for immigrant labor, and hence immigrants' integration prospects. Given the skill composition of the supply of immigrant workers, the receiving country's industrial structure determines the skill

composition of labor demand in the economy. A related variable underpinning the VoC typology is the share of people with vocational education and training in the economy, which affects the nature of labor supply and competition in the labor market. Immigrants' integration in the labor market may be easier in general skill regimes, which put less emphasis on formal education and skill certification, as opposed to dual education regimes, where qualification requirements and licensing are more formalized. The interaction of the supply and demand sides then shape the immigrants' prospects of finding a suitable job offer. We therefore include the shares of agriculture, services, and the industrial sector in GDP, as well as the share of people with vocational education and training, in our analysis.

Several studies have documented that country of origin is significant for immigrant integration, and that its effects are persistent (see e.g. Kahanec and Zimmermann, 2011). To account for this, we calculate the shares of immigrants from six major regions of origin in the immigrant stock, using the EU LFS. Table 2 shows that the composition of the immigrant population varies across VoC types. CMEs mainly host immigrants of European origin, whereas in LMEs and MMEs the dominant immigrant groups are of non-European origin. Immigration only has a short history in EMEs, as a result of which these countries host only relatively small numbers of immigrants.

As the EU LFS does not enable us to control for years since migration, a variable that has been shown to significantly affect immigrant integration (e.g. Borjas, 1985; Kahanec and Zimmermann, 2011), we also include a measure of the current inflows of immigrants relative to host country populations. Finally, per capita GDP and the unemployment rate are included in the

analysis to control for possible confounding factors driven by the business cycle. Table 2 illustrates the variation of these institutional and structural variables across the four VoC types.

Table 2. Institutional and structural variables across VoC types

	CME	EME	LME	MME
Union density	30.27	15.97	27.54	19.20
Collective bargaining coverage	74.02	35.70	33.62	83.69
EPL - regular contract	2.68	2.48	1.20	2.62
EPL - temporary contract	1.17	1.18	0.39	2.87
The share of VET	59.48	53.97	43.13	48.13
Export as % of GDP	53.45	75.29	32.54	27.04
Agriculture share of GDP	1.15	3.29	0.73	2.27
Manufacturing share of GDP	28.19	34.47	22.78	24.11
Services share of GDP	70.66	62.24	76.50	73.61
% migrants from EU-15	0.26	0.07	0.21	0.18
% migrants from EU-12	0.09	0.64	0.13	0.11
% migrants from other Europe	0.37	0.23	0.04	0.15
% migrants from Africa	0.13	0.02	0.21	0.31
% migrants from Asia	0.09	0.03	0.28	0.07
% migrants from America, Oceania	0.06	0.01	0.13	0.18
Inflow of immigrants, per 1000	7.90	3.32	7.48	6.45
Per-capita GDP (log)	10.60	10.07	10.49	10.43
Unemployment rate	7.28	8.99	6.56	10.34

Note: Authors' calculation based on the EU Labor Force Survey and Eurostat, World Bank and OECD data. Averages are weighted by country population. CME (Austria, Belgium, Germany, Denmark, Finland, Luxembourg, the Netherlands, and Sweden); LME (Ireland and the United Kingdom); MME (France, Greece, Italy, Portugal and Spain); EME (the Czech Republic, Estonia, Hungary and Slovakia).

In Table 3 we report labor market outcome variables for immigrants and natives across the four studied VoC types. Several salient observations emerge: participation rates are generally lower for immigrants than natives (except in MMEs) while both unemployment rates and the share of workers in low-skilled or temporary employment are higher for immigrants than natives. The

gaps are narrowest in LMEs, except for the labor force participation gap, which favors immigrants in MMEs. The largest participation and unemployment gaps are documented in CMEs, whereas the largest low-skilled and temporary employment gaps are observed in MMEs. Our results show that large fractions of these gaps are not explained by observable characteristics.

Table 3. Natives' and immigrants' labor market outcomes by VoC type

	CME	EME	LME	MME
<i>Natives</i>				
Participation rate	0.75	0.65	0.74	0.67
Unemployment rate	0.06	0.10	0.07	0.10
Low-skill job	0.08	0.08	0.09	0.10
Temporary contract	0.12	0.08	0.06	0.17
<i>Migrants</i>				
Participation rate	0.71	0.68	0.72	0.73
Unemployment rate	0.12	0.13	0.10	0.14
Low-skill job	0.16	0.13	0.13	0.25
Temporary contract	0.15	0.13	0.09	0.26
<i>Differences</i>				
Participation rate	-0.04	0.03	-0.01	0.06
Unemployment rate	0.06	0.03	0.02	0.05
Low-skill job	0.09	0.04	0.04	0.15
Temporary contract	0.04	0.04	0.03	0.09
<i>Unexplained gap</i>				
Participation rate	-0.06	-0.01	-0.06	0.02
Unemployment rate	0.05	0.04	0.03	0.03
Low-skill job	0.07	0.04	0.06	0.14
Temporary contract	0.04	0.05	0.03	0.08
<i>Explained gap</i>				
Participation rate	0.02	0.04	0.05	0.04
Unemployment rate	0.01	-0.01	0.00	0.01
Low-skill job	0.02	0.01	-0.02	0.01
Temporary contract	0.00	-0.01	0.00	0.01

Source: Authors' calculation based on EU-LFS, 2004-2012

3. Empirical strategy

We examine factors explaining immigrant labor market integration in terms of immigrants' labor market potential and their treatment in the labor market. Immigrant-native labor market gaps estimated using the Oaxaca-Blinder decomposition, Δ^e and Δ^u , enter as dependent variables. The analysis proceeds separately, first for the part of the labor market gap that is explained by differences in the characteristics of the immigrant and non-immigrant populations, and second for the part that remains unexplained by such differences. Specifically, we estimate the following models using the OLS estimator:

$$\Delta_{kt}^e = \alpha + Z'\beta + V'\gamma + VoC + \eta_t + \varepsilon_{kt} \quad (5)$$

$$\Delta_{kt}^u = \alpha + Z'\beta + V'\gamma + VoC + \eta_t + \varepsilon_{kt}, \quad (6)$$

where matrix Z represents key explanatory variables identified in the VoC literature: union density, collective bargaining coverage, EPL indicators, export's share in GDP, the share of vocational education and training in the population, and indicators of the industrial structure of the economy (share of agriculture and share of manufacturing). VoC is a set of dummies representing the four VoC types introduced above: CME, LME, MME, and EME. The matrix of contextual variables V includes the logarithm of per capita GDP (expressed in 2011 prices in PPP dollars) and unemployment rates. In addition, it includes shares of immigrants by origin and relative inflows of immigrants. Year-specific effects are captured by η_t and ε_{kt} is the error term.

As cross-sectional estimates may be affected by variation in unobserved factors across countries, we next estimate a panel model, which identifies the studied relationships based on longitudinal rather than cross-sectional variation. In models 7 and 8, μ_k represents country fixed effects, and

hence coefficients β in these models measure the relationship between within-country changes of variables Z and immigrant-native gaps over time.

$$\Delta_{kt}^e = \alpha + Z'\beta + V'\gamma + \mu_k + \eta_t + \varepsilon_{kt} \quad (7)$$

$$\Delta_{kt}^u = \alpha + Z'\beta + V'\gamma + \mu_k + \eta_t + \varepsilon_{kt}, \quad (8)$$

4. Results

The baseline results are presented in Tables 4 (for explained immigrant-native gaps) and 5 (for unexplained immigrant-native gaps). The roles of the VoC indicators are assessed with regard to four different labor market outcomes: labor force participation, selection into low-skilled occupations, temporary work contracts, and unemployment. We recall that the gap is defined here as the difference between immigrant and native populations; measuring the relationship between institutional variables on the *explained gap* helps us to identify how the difference between immigrants' and natives' characteristics might be affected by institutional contexts. On the other hand, the *unexplained gap* reveals differences in the treatment or behavior of immigrants relative to natives, which we study as a function of institutional context variables. The estimated coefficients should be interpreted with reference to the immigrant-native gaps reported in Table 3. A positive coefficient in the model explaining gaps in labor force participation indicates that an increase in the respective explanatory variable favors immigrants over natives. On the other hand, positive coefficients in the models for unemployment, low-skilled employment, and temporary employment indicate that an increase in the respective explanatory variable is associated with an increase in the gap in the respective variable, and hence disadvantages immigrants vis-à-vis natives.

In general, the VoC variables are shown to have significant effects on both explained (Table 4) and unexplained (Table 5) gaps. The coefficients reported in Table 4 show that compared to CMEs, immigrants in LMEs and EMEs have characteristics that place them at an advantage over the natives for all the studied labor market outcomes. This is also true in MMEs for participation and unemployment gaps; however, immigrants' characteristics in MME's seem to place them at a slight disadvantage vis-à-vis the natives in terms of the risk of low-skilled employment, and the effects for temporary employment are statistically insignificant.

The results in Table 5 looking at unexplained gaps indicate that in LMEs the unexplained gap in access to quality employment is somewhat smaller than it is in CMEs, although the effects are only marginally significant. The residual effect of LMEs (after controlling for the other VoC variables) on equal treatment in access to employment is shown to disadvantage immigrants. In MMEs immigrants are relatively better treated than in CMEs in terms of labor force participation as well as access to quality employment (with a lower risk of low-skilled or temporary employment); however, this seems to come at the price of a higher unexplained gap in the risk of unemployment. In EMEs immigrants are shown to enjoy a particular advantage (compared to immigrants in CMEs) in terms of equal treatment in access to employment. The residual effect on the unexplained gap in low-skilled employment in EMEs, after controlling for the other VoC variables, also favors immigrants.

While VoC dummies capture salient effects, the individual VoC variables can provide a richer picture of the underlying relationships driving these effects. Table 4 shows that a higher union density provides for immigrant characteristics that favor them vis-à-vis the natives in terms of

access to labor market (participation rate) and their chances of getting a job (unemployment rate), but provides a less favorable context in terms of the explained low-skilled employment gap. Collective bargaining coverage seems to have a similar effect to union density on the participation and unemployment gaps; in addition, higher collective bargaining coverage is associated with a smaller immigrant-native gap in access to high quality employment (i.e. a lower propensity towards low-skill or temporary employment).

The positive effects of union density on immigrants' characteristics seem to come at a price, however. Table 5 shows that higher union density is associated with larger unexplained immigrant-native gaps in terms of unemployment, low-skilled employment, and temporary employment. Collective bargaining coverage, on the other hand, appears to reduce the unexplained gap in terms of the risk of low-skilled work, and less significantly also temporary employment.

Higher protection of regular employment contracts provides for a relatively higher participation rate among immigrants, in terms of both explained and unexplained gaps, although the latter effect is less significant. On the other hand, such protection increases unexplained immigrant-native gaps in risk of unemployment and low-skilled employment. Higher protection of temporary contracts has the opposite effect. Less temporary contract flexibility increases immigrants' chances of ending up in unemployment, low-skilled employment or a temporary contract. These effects work through immigrant-native differences in both characteristics and unexplained factors.

Table 4. Explained immigrant-native labor market gaps: the role of institutions

	Participation rate		Unemployment rate		Low-skill job		Temporary contract	
<i>VoC dummies (excluded: CME):</i>								
LME	0.0352 (0.011)	*** 0.1305 (0.020)	-0.0304 (0.010)	*** -0.0931 (0.012)	-0.0279 (0.004)	*** -0.0485 (0.009)	-0.0223 (0.004)	*** -0.0346 (0.009)
MME	0.0674 (0.007)	*** 0.0796 (0.015)	-0.0017 (0.007)	** -0.0183 (0.008)	0.0159 (0.004)	*** 0.0051 (0.004)	0.0047 (0.005)	-0.0044 (0.006)
EME	0.0997 (0.014)	*** 0.208 (0.026)	-0.0142 (0.012)	*** -0.0957 (0.021)	-0.0551 (0.007)	*** -0.1222 (0.017)	*** -0.0518 (0.007)	*** -0.0722 (0.016)
<i>VoC variables:</i>								
Union density		** 0.0003 (0.000)		*** -0.0003 (0.000)		*** 0.0005 (0.000)		-0.0001 (0.000)
Collective bargaining coverage		*** 0.0021 (0.000)		*** -0.0014 (0.000)		*** -0.0013 (0.000)		-0.0004 (0.000)
EPL - regular contract		*** 0.0215 (0.007)		*** -0.0248 (0.004)		*** -0.0027 (0.003)		-0.0021 (0.003)
EPL - temporary contract		0.006 (0.008)		** 0.0081 (0.004)		*** 0.0111 (0.002)		0.0066 (0.003)
The share of VET		*** -0.0009 (0.000)		*** 0.0007 (0.000)		** 0.0002 (0.000)		0.0001 (0.000)
Export as % of GDP		** 0.0004 (0.000)		*** -0.0004 (0.000)		0 (0.000)		-0.0002 (0.000)
% GDP in agriculture		0.0046 (0.004)		*** -0.0114 (0.002)		*** -0.0099 (0.002)		0.0001 (0.002)
% GDP in manufacturing		-0.0002 (0.001)		0.0006 (0.001)		0.0008 (0.001)		-0.0002 (0.000)
<i>Contextual variables:</i>								
% migrants from EU-15	0.184 (0.037)	*** 0.1834 (0.052)	-0.0311 (0.035)	-0.0497 (0.034)	0.043 (0.023)	* -0.0789 (0.033)	0.0118 (0.021)	-0.0144 (0.029)
% migrants from EU-12	-0.2082 (0.026)	*** -0.1813 (0.035)	0.2095 (0.025)	*** 0.1754 (0.026)	-0.0057 (0.016)	0.0027 (0.018)	0.0558 (0.017)	0.0347 (0.018)
% migrants from other Europe	-0.0483 (0.021)	** 0.0054 (0.032)	0.1825 (0.023)	*** 0.1201 (0.025)	*** -0.0236 (0.013)	* -0.0552 (0.017)	0.0219 (0.012)	-0.0219 (0.017)
% migrants from Africa	-0.2005 (0.040)	*** -0.2488 (0.054)	0.2055 (0.043)	*** 0.1738 (0.041)	*** -0.1686 (0.021)	*** -0.1358 (0.026)	-0.0177 (0.024)	-0.0941 (0.034)
% migrants from Asia	0.0387 (0.067)	0.3591 (0.130)	0.1447 (0.063)	** -0.1271 (0.087)	0.1111 (0.032)	*** -0.1155 (0.070)	0.0417 (0.028)	-0.112 (0.062)
Inflow of immigrants, per 1000	0.0006 (0.001)	0.002 (0.001)	0.0014 (0.001)	** -0.0002 (0.000)	0.0006 (0.000)	* -0.0006 (0.000)	0.0002 (0.000)	-0.0012 (0.000)
Per-capita GDP	-0.0897 (0.028)	*** -0.0694 (0.027)	0.1278 (0.027)	*** 0.0844 (0.018)	*** -0.0784 (0.014)	*** -0.0698 (0.012)	0.0000 (0.015)	-0.0296 (0.012)
Unemployment rate	-0.0034 (0.001)	*** 0.0001 (0.001)	0.0059 (0.001)	*** 0.0025 (0.001)	*** 0.0018 (0.001)	*** -0.0002 (0.001)	0.0006 (0.001)	-0.0005 (0.001)
N	167	167	160	160	151	151	163	163
R-squared	0.63	0.81	0.57	0.87	0.68	0.87	0.46	0.75

Note: Dependent variables: Explained gap (EG). Varieties of capitalism: CME - coordinated market economy (taken as reference), LME - liberal market economy, MME - mixed market economy and EME - East Europe market economy. OLS with robust (Eicker-Huber-White) heteroskedastic-consistent standard errors with year dummies. ***, **, and * denote 1%, 5%, and 10% confidence levels.

Table 5. Unexplained immigrant-native labor market gaps: the role of institutions

	Participation rate	Unemployment rate	Low-skill job	Temporary contract
<i>VoC dummies (excluded: CME):</i>				
LME	-0.0081 (0.010)	-0.0012 (0.010)	-0.0178 (0.010)	-0.016 (0.009)
MME	0.1112 (0.006)	0.0819 (0.010)	-0.017 (0.015)	*** (0.005)
EME	0.0118 (0.008)	-0.0695 (0.013)	0.0019 (0.013)	0.0105 (0.010)
<i>VoC variables:</i>				
Union density	0 (0.000)	0.0006 (0.000)	0.0006 (0.000)	0.0005 (0.000)
Collective bargaining coverage	0.0003 (0.000)	0.0003 (0.000)	-0.0011 (0.000)	-0.0005 (0.000)
EPL - regular contract	0.0097 (0.005)	0.0143 (0.005)	0.0266 (0.006)	-0.008 (0.004)
EPL - temporary contract	0.0095 (0.006)	0.0282 (0.006)	0.0395 (0.008)	-0.0015 (0.006)
The share of VET	-0.0003 (0.000)	0.0001 (0.000)	0.0005 (0.000)	0.0007 (0.000)
Export as % of GDP	0.0001 (0.000)	0.0008 (0.000)	0.0003 (0.000)	0
% GDP in agriculture	-0.0051 (0.003)	-0.0062 (0.003)	0.0209 (0.004)	0.011 (0.003)
% GDP in manufacturing	-0.0002 (0.001)	-0.0033 (0.001)	0.0021 (0.002)	0.0014 (0.001)
<i>Contextual variables:</i>				
% migrants from EU-15	0.116 (0.027)	-0.1127 (0.041)	-0.1862 (0.053)	-0.1001 (0.031)
% migrants from EU-12	0.0056 (0.021)	0.0118 (0.028)	-0.2466 (0.039)	-0.0179 (0.021)
% migrants from other Europe	-0.0045 (0.019)	0.0666 (0.029)	-0.2157 (0.036)	-0.0102 (0.016)
% migrants from Africa	-0.2241 (0.035)	-0.1308 (0.040)	-0.1204 (0.049)	0.1485 (0.032)
% migrants from Asia	-0.0143 (0.063)	0.0496 (0.075)	-0.2491 (0.088)	-0.0903 (0.053)
Inflow of immigrants, per 1000	0.0022 (0.001)	0.0025 (0.001)	0.0019 (0.001)	-0.0003 (0.001)
Per-capita GDP	-0.0788 (0.017)	0.0083 (0.027)	-0.1097 (0.028)	0.0769 (0.023)
Unemployment rate	-0.0002 (0.001)	0.0007 (0.001)	-0.0006 (0.001)	0.0056 (0.001)
N	167	160	151	163
r ²	0.89	0.8	0.67	0.59

Notes: Dependent variables: Unexplained gap (UG). Varieties of capitalism: CME - coordinated market economy (taken as reference), LME - liberal market economy, MME - mixed market economy and EME - East Europe market economy. OLS with robust (Eicker-Huber-White) heteroskedastic-consistent standard errors with year dummies. ***, **, and * denote 1%, 5%, and 10% confidence levels.

Skill specificity, as proxied by the share of the population with vocational education and training, seems to disadvantage immigrants in terms of differences in characteristics (for participation, unemployment and low-skilled employment) as well as differences in unexplained factors (for participation, low-skilled employment and temporary employment). Meanwhile, the host country's openness is associated with more favorable immigrant characteristics vis-à-vis the natives in terms of labor force participation, unemployment and temporary employment; it seems, however, to reduce immigrants' access to employment (in comparison to the natives) via unequal treatment in the labor market. Finally, more agrarian countries provide conditions for lower explained gaps between immigrants and native in terms of unemployment, low-skilled and temporary employment. However, these countries disadvantage immigrants in terms of unexplained gaps, with the exception of the risk of unemployment. Countries with a larger manufacturing sector provide more favorable conditions in terms of unexplained gaps in access to employment; however, they seem to be less favorable to immigrants in terms of the risk of temporary employment.

As for the contextual variables, the benefits of economic growth (higher GDP per capita) accrue to the natives rather than immigrants in terms of participation (explained as well as unexplained gaps), unemployment (explained gaps) and temporary employment (unexplained) gaps; however, immigrants seem to upgrade into higher skilled (explained as well as unexplained gaps) and perhaps also permanent jobs (explained) relative to the natives during economic upturns. Higher unemployment rates mainly affect immigrants in terms of their participation, unemployment, and low skilled employment (explained gaps), and temporary employment (unexplained gap).

The composition of immigrants in the host economies is shown to affect both explained and unexplained immigrant-native labor market gaps.

The results given in Tables 4 and 5, which explore variation across VoC types may not be particularly useful for national policy makers, who are interested in what will happen if a given variable or policy instrument in their country changes over time. Moreover, some of the results in the pooled OLS model may be driven by unobserved heterogeneity across countries. We therefore estimated models (7) and (8) with country (and year) fixed effects, with all coefficients now measuring relationships identified by within- but not across- country variation. Table 6 reports the results of these panel regressions.

The inclusion of country fixed effects controls for country-specific time-invariant variables and hence removes a nontrivial part of the variation in the data. It is therefore not surprising that we find fewer significant relationships. Among those we do identify, higher union density disadvantages immigrants vis-à-vis the natives in terms of how their characteristics translate into their labor market participation, risk of unemployment and temporary employment. In other words, due to compositional effects, an increase in union density is associated with immigrants being more likely than natives to end up inactive, unemployed, or with a temporary contract. Broader collective bargaining coverage, on the other hand, provides for a lower explained gap in the risk of temporary employment between immigrants and natives in their host countries.

Employment protection varies much less over time than the previous two variables, and so its effects tend to be poorly identified in panel models. Nevertheless, we find that increased

protection of regular employment contracts is associated with more favorable immigrant characteristics.

Our estimates indicate that vocational education and training (VET) has a significant effect on the improvement of treatment of immigrants in terms of their access to employment and skilled jobs, although the effect is only marginally significant in the first of these two areas. A higher degree of openness to international trade favors immigrants relative to natives in terms of their underlying ability to find a job (explained gap) and get a permanent contract (explained gap), although the latter effect is only marginally significant. Finally, an increase in the share of agriculture in the economy places immigrants at a disadvantage in terms of explained gaps in participation rates, and an increase in the share of manufacturing increases the explained gaps in unemployment rates.

Table 6. Within-country determination of immigrant-native labor market gaps

	Participation rate		Unemployment rate		Low-skill job		Temporary contract	
	EG	UG	EG	UG	EG	UG	EG	UG
<i>VoC variables:</i>								
Union density	-0.0047 (0.001)	*** 0.0014 (0.001)	0.0027 (0.001)	** -0.0003 (0.001)	0.0008 (0.001)	0.0008 (0.001)	0.0015 (0.000)	*** 0.0005 (0.001)
Collective bargaining coverage	0.0001 (0.001)	0.0006 (0.001)	-0.0003 (0.000)	-0.001 (0.001)	-0.0004 (0.001)	*	-0.0006 (0.000)	*** -0.0009 (0.001)
EPL - regular contract	0.0045 (0.015)	0.006 (0.014)	-0.0098 (0.010)	-0.0159 (0.013)	-0.0166 (0.008)	**	0.0104 (0.007)	-0.0173 (0.013)
EPL - temporary contract	0.0312 (0.022)	-0.0148 (0.014)	-0.0077 (0.007)	0.0155 (0.011)	0.0007 (0.006)		0.0029 (0.005)	-0.0031 (0.010)
The share of VET	0.0002 (0.000)	-0.0002 (0.000)	0.0002 (0.000)	-0.0004 (0.000)	-0.0002 (0.000)	**	-0.0001 (0.000)	-0.0001 (0.000)
Export as % of GDP	-0.0007 (0.000)	0.0005 (0.000)	-0.0007 (0.000)	-0.0001 (0.000)	0.0002 (0.000)		0.0005 (0.000)	0.0004 (0.000)
% GDP in agriculture	-0.0235 (0.007)	*** -0.0023 (0.005)	-0.0032 (0.005)	-0.0031 (0.006)	-0.0015 (0.004)	*	0.0018 (0.003)	-0.0005 (0.006)
% GDP in manufacturing	0.0006 (0.001)	0.0015 (0.002)	0.0028 (0.001)	0.0027 (0.002)	0.0003 (0.001)		-0.0003 (0.001)	-0.0025 (0.001)
<i>Contextual variables:</i>								
% migrants from EU-15	0.1563 (0.267)	0.1429 (0.220)	-0.274 (0.172)	-0.4505 (0.288)	-0.0952 (0.112)		-0.4957 (0.352)	-0.1089 (0.083)
% migrants from EU-12	0.1264 (0.244)	0.3234 (0.176)	-0.1152 (0.139)	-0.0598 (0.265)	-0.0208 (0.099)	*	-0.5756 (0.302)	-0.1119 (0.198)
% migrants from other Europe	0.0748 (0.289)	0.4152 (0.205)	-0.2959 (0.163)	* -0.1702 (0.288)	-0.1043 (0.107)	**	-0.7058 (0.328)	* 0.0069 (0.228)
% migrants from Africa	-0.0664 (0.210)	0.2313 (0.194)	-0.0772 (0.149)	-0.2648 (0.285)	0.0142 (0.097)		-0.2736 (0.293)	0.0277 (0.198)
% migrants from Asia	0.0169 (0.293)	0.5012 (0.226)	-0.1756 (0.203)	0.1388 (0.280)	-0.0754 (0.122)		-0.3284 (0.310)	-0.1295 (0.222)
Inflow of immigrants, per 1000	0.0007 (0.001)	0.0014 (0.001)	-0.0002 (0.001)	-0.0015 (0.001)	-0.0002 (0.000)	***	0.0029 (0.001)	0.0009 (0.001)
Per-capita GDP	-0.0969 (0.065)	0.0921 (0.066)	0.026 (0.046)	-0.105 (0.061)	-0.0799 (0.037)	**	-0.2887 (0.089)	** 0.1397 (0.068)
Unemployment rate	0.0005 (0.001)	0.0015 (0.001)	0.002 (0.001)	-0.0019 (0.001)	-0.0002 (0.001)		0.0021 (0.002)	* 0.0037 (0.001)
N	167	167	160	160	151		163	163
r ²	0.9	0.94	0.92	0.95	0.92		0.91	0.84

Notes: Dependent variables: Explained gap (EG), Unexplained gap (UG). Varieties of capitalism: CME - coordinated market economy (taken as reference), LME - liberal market economy, MME - mixed market economy and EME - East Europe market economy. OLS with robust (Eicker-Huber-White) heteroskedastic-consistent standard errors with year dummies. ***, **, and * denote 1%, 5%, and 10% confidence levels.

5. Conclusions

Although immigrant integration opportunities and challenges are in many respects similar across countries, there may be a number of important differences linked to international variation in the areas of industrial relations, labor laws, education and training, employment and supply and demand conditions. Comparative capitalism literature on Varieties of Capitalism (VoC) inspired by Hall and Soskice (2001) offers a systematic typology of socio-economic regimes for advanced economies, which proxies the institutional and supply and demand conditions that may be relevant for immigrant integration. In this paper we have looked at the significance of these institutional and economic contexts for immigrant-native labor market gaps.

We distinguished two types of immigrant-native labor market gaps, based on whether they can be explained by immigrant-native differences in observed characteristics, or whether they are due to different returns to characteristics or other unobserved factors. This distinction is crucial from the policy perspective, since whereas the former type of gap is determined outside the labor market, the latter arises directly from labor market interaction between employees, employers and other actors. From a different perspective, explained gaps imply that workers attain different labor market outcomes because they have different characteristics relevant to the labor market. The role of integration policy is then to reduce or eliminate such gaps in characteristics, for example by providing equal access to education. Unexplained gaps, on the other hand, imply that workers with identical labor market characteristics are being unequally treated. The main policy challenge in relation to such gaps is hence equal treatment in the labor market.

Our results show that VoC types and the individual variables underpinning the VoC typology do matter for immigrant integration in host labor markets. We find that these effects are independent of contextual variables, including the business cycle and the composition of immigrant populations by country of origin and tenure in the country.

Compared to coordinated market economies, liberal and emerging market economies seem to attract and keep immigrants better equipped to succeed in the labor market. Whereas mixed market economies provide favorable conditions in terms of immigrants' labor force participation and permanent employment, their results are mixed when it comes to unemployment and low-skilled employment.

No simple conclusions can be drawn about the effects of union density and collective bargaining coverage on immigrant-native labor market gaps. It seems that stronger unions can provide for more favorable immigrant labor market characteristics, although these benefits may be reduced or overturned due to increased unexplained immigrant-native labor market gaps. Similarly, whereas stronger protection of regular employment contracts may be associated with favorably composed immigrant populations, it also results in immigrants having more difficult access to employment, skilled jobs, and permanent contracts. The situation is even worse with protection of temporary employment contracts, which generally has an adverse effect on both explained and unexplained immigrant-native labor market gaps.

Our results show that countries with a large share of vocational education and training disadvantage immigrants, which is consistent with the hypothesis that under those conditions

immigrants cannot easily transfer the skills they acquired abroad. Even worse, immigrants seem to suffer from less equal treatment in the labor market under these regimes. The situation is the opposite in countries with high exposure to international trade, where explained immigrant-native gaps seem to be lower. Industrial structure is shown to matter, too: more agricultural countries exhibit lower explained gaps but higher unexplained gaps; the effects of the share of manufacturing are less conclusive.

Our most restrictive model, with country fixed effects, may be the most relevant from the perspective of policy makers wishing to promote immigrant integration by manipulating their national contexts. We show that increased union density disadvantages immigrants through increased explained labor market gaps, although increased collective bargaining coverage seems to mitigate those adverse effects. Protection of regular employment contracts reduces explained gaps in low-skilled employment. The share of vocational education and training and the openness of economies to international trade seem to reduce some unexplained and explained immigrant-native labor market gaps, respectively. It may be more difficult for immigrants to participate in more agricultural countries, and to find jobs in more industrialized ones.

Immigration from European countries outside the EU seems to be associated with smaller immigrant-native labor market gaps, while Asians are strongly attached to the labor market. More dynamic immigration seems to cost some immigrants a more skilled job. Stronger economic growth is shown to have a strong positive effect on immigrants' relative positions in terms of skilled employment, although it also results in a larger unexplained gap in temporary employment.

Higher union density increases the unemployment gap between immigrants and natives, but collective bargaining coverage seems to have no significant effect. Protection of regular employment contracts reduces the gap in the prevalence of low-skilled employment between immigrants and natives; however, it pushes immigrants into temporary employment. Protection of temporary employment contracts has similar effects on immigrant-native gaps in low-skilled as well as temporary employment; in addition, it disadvantages immigrants vis-à-vis the natives in terms of participation and employment gaps. We also find that more open economies, i.e. those with a higher export-to-GDP ratio, provide favorable conditions for labor force participation and perhaps also immigrants' employment.

These results point towards several conclusions. First, institutional contexts significantly influence immigrant integration prospects. Second, policy makers need to be aware of the potentially adverse side effects for immigrant integration that industrial policies might have. Those side effects may need to be mitigated by complementary policies, or reinforced and targeted if they are positive. Third, although this article provides a consistent picture about how various institutional contexts matter for immigrant integration, we also show that implications from cross-country comparisons do not always translate into identical results when looking at national changes over time and policy interventions. Immigrant integration policies therefore need to be tailored to specific national contexts.

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